

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF 2.5 R3
 Edition : 12.11.91
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R368
 Type number : 0 460 414 076
 Customer Part-No. :

Customer-specific information
 Customer : SOFIM

Engine : 8140.27.2580/82

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
 Charge press. hPa: 1000
 Setting value mm: 2.20...2.60
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
 Charge press. hPa: 1000
 Setting value bar: 5.50...6.10
 Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:
 Speed 1/min: 1750
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 55.00...56.00

Shutoff
 electromagnet Volt: 12
 Dispersion cm³/ 4.0
 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 16.50...17.50
 Shutoff
 electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 325
 Del. quantity cm³/
 1000S.: 10.00...14.00
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 6.0
 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2100
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 19.50...25.50
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³: 40.00...80.00
 mind 1000S.: 40.00
 Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1300
 Charge press. hPa: 1000

Inj.-qty.	cm ³ /		
difference	1000s.: 22.00...30.00		
Shutoff			
electromagnet Volt:	12		
TD-travel dif.measurement			
correttore anticipo iniezione (SV)			
1.Speed	1/min: 1300		
Charge press	hPa: 1000		
TD-travel			
difference	mm: 1.90...2.10		
Shutoff			
electromagnet Volt:	12		
SP press.-dif.measurement			
pompa di mandata (FP)			
1.Speed	1/min: 1300		
Charge press	hPa: 1000		
Supply pump			
pressure			
difference	bar: 0.10...0.30		
Shutoff			
electromagnet Volt:	12		
Inspection-pump test specifications			
Test specifications in parentheses			
Timing-device characteristic:			
2nd speed	1/min: 1900		
Charge press	hPa: 1000		
TD travel	mm: 7.10...7.90		
	mm: (6.80...8.20)		
Shutoff			
electromagnet Volt:	12		
3rd speed	1/min: 1100		
Charge press	hPa: 1000		
TD travel	mm: 2.20...2.60		
	mm: (1.70...3.10)		
Shutoff			
electromagnet Volt:	12		
4th speed	1/min: 900		
Charge press	hPa: 1000		
TD travel	mm: 0.60...1.40		
	mm: (0.30...1.70)		
Shutoff			
electromagnet Volt:	12		
Supply-pump pressure characteristic:			
1st speed	1/min: 500		
Charge press.	hPa: 1000		
Supply-pump			
pressure	bar: 3.60...4.20		
	bar: (3.30...4.50)		
Shutoff			
electromagnet Volt:	12		
2nd speed	1/min: 1100		
Charge press.	hPa: 1000		
Supply-pump			
pressure	bar: 5.50...6.10		
	bar: (5.20...6.40)		
Shutoff			
electromagnet Volt:	12		
3rd speed	1/min: 1900		
Charge press.	hPa: 1000		
Supply-pump			
pressure	bar: 7.60...8.20		
	bar: (7.30...8.50)		
Shutoff			
electromagnet Volt:	12		
Overflow quantity at overflow valve:			
1st speed	1/min: 500		
Shutoff			
electromagnet Volt:	12		
Overflow	: 41.70...83.40		
quantity	cm ³ /10s: (26.70...98.40)		
2nd speed	1/min: 1900		
Charge press.	hPa: 1000		
Shutoff			
electromagnet Volt:	12		
Overflow	: 55.60...139.00		
quantity	cm ³ /10s: (40.60...154.00)		
Delivery-quant. and breakaway char.:			
1nd speed	1/min: 800*		
Charge-air pressure-setting			
point	hPa: 400		
LDA-stroke	mm: 6.5		
Shutoff			
electromagnet Volt:	12		
Del. quantity cm ³ :	42.50...43.50		
	1000s.: (39.00...47.00)		
2nd speed	1/min: 2350		
Charge press.	hPa: 1000		
Shutoff			
electromagnet Volt:	12		
Del. quantity cm ³ :	0.00...5.00		
	1000s.: (0.00...5.00)		
5th speed	1/min: 2100		
Charge press.	hPa: 1000		
Shutoff			
electromagnet Volt:	12		
Del. quantity cm ³ :	19.50...25.50		
	1000s.: (18.00...27.00)		
8th speed	1/min: 2000		
Charge press.	hPa: 1000		
Shutoff			
electromagnet Volt:	12		
Del. quantity cm ³ :	40.00...48.00		
	1000s.: (38.00...50.00)		
9th speed	1/min: 1900		
Charge press.	hPa: 1000		
Shutoff			
electromagnet Volt:	12		
Del. quantity cm ³ :	51.00...56.00		
	1000s.: (50.00...57.00)		
11th speed	1/min: 1500		

Charge press. hPa: 1000	Load-dependent start of delivery:
Shutoff	Inj.-qty.dif.measurement:
electromagnet Volt: 12	
Del. quantity cm ³ /: 52.50...57.50	
1000S.: (51.00...59.00)	
12th speed 1/min: 1750	4th speed 1/min: 1300
charge press. hPa: 1000	Charge press. hPa: 1000
Shutoff	Inj.-qty. cm ³ /: 22.00...30.00
electromagnet Volt: 12	difference 1000S.: (22.00...30.00)
Del. quantity cm ³ /: 55.00...56.00	Shutoff
1000S.: (52.00...59.00)	electromagnet Volt: 12
15th speed 1/min: 1000	2nd speed 1/min: 1300
charge press. hPa: 1000	Charge press. hPa: 1000
Shutoff	TD-travel : 1.90...2.10
electromagnet Volt: 12	difference mm: (1.90...2.10)
Del. quantity cm ³ /: 49.50...54.50	Shutoff
1000S.: (48.00...56.00)	electromagnet Volt: 12
18th speed 1/min: 500	2nd speed 1/min: 1300
charge press. hPa: -	Charge press. hPa: 1000
Shutoff	Supply pump-
electromagnet Volt: 12	pressure : 0.10...0.30
Del. quantity cm ³ /: 16.50...17.50	difference bar: (0.10...0.30)
1000S.: (13.50...20.50)	Shutoff
20th speed 1/min: 500	electromagnet Volt: 12
charge press. hPa: 1000	Part-load del.at 3rd inj.-qty.
Shutoff	terza fermo della portata
electromagnet Volt: 12	stop (EGR set)
Del. quantity cm ³ /: 48.50...54.50	scarico) (ARF)
1000S.: (47.50...55.50)	gaz d'échappement-ARF)
Mech. shutoff:	Spacing mm: 12.0
Electr. shutoff:	
1st speed 1/min: 325	1st speed 1/min: 1000
Del. quantity cm ³ /: 0.00...3.00	Charge press. hPa: 1000
1000S.: (0.00...3.00)	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet volt: -	Del. quantity cm ³ /: 6.10...7.10
Idle delivery:	1000S.: (3.10...10.10)
1st speed 1/min: 325	Automatic starting fuel delivery:
Shutoff	1st speed 1/min: 300
electromagnet Volt: 12	Shutoff
Del. quantity cm ³ /: 10.00...14.00	electromagnet Volt: 12
1000S.: (8.00...16.00)	Del. quantity cm ³ /: 40.00...70.00
Dispersion cm ³ /: 6.0	1000S.: (40.00...70.00)
1000S.: (6.5)	2nd speed 1/min: 400
2nd speed 1/min: 450	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm ³ /: 15.00...45.00
Del. quantity cm ³ /: 0.00...5.00	1000S.: (15.00...45.00)
1000S.: (0.00...5.00)	4th speed 1/min: 100
3rd speed 1/min: 250	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm ³ /: 40.00...80.00
Del. quantity cm ³ /: 31.00...41.00	1000S.: (40.00...80.00)
1000S.: (30.00...42.00)	Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: KOT
MS mm: 0.6...0.1
SVS max. mm: 0.8
LDA stroke mm: 6.5
XK mm: 20.0...22.0
XL mm: 9.3...12.7

Remarks:

* Correction at adjusting nut (46)

Operate control lever after each
manifold-pressure compensator pressure
change.

For adjustment of switching point
(EGR valve), include 12.0 mm spacer
at third fuel-delivery stop.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 3.6 Q
 Edition : 12.11.91
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/11F1800L218-6
 Type number : 0 460 416 059
 Customer Part-No. :

Customer-specific information
 Customer : VOLVO-PENTA

Engine : AQAD 41 A

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130.00...133.00

Test inj. tubing : 1 688 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: 0.3
 (from BDC): +0.02(0.04)

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
 Charge press. hPa: 1000
 Setting value mm: 3.90...4.30

Supply-pump pressure

Speed 1/min: 1200
 Charge press. hPa: 1000

Setting value bar: 6.00...6.60

Full-load del. with charge press.:

Speed 1/min: 1500
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 68.00...69.00
 Dispersion cm³: 5.0
 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 650
 Del. quantity cm³/
 1000S.: 51.50...52.50

Low-idle speed regulation

Speed 1/min: 350
 Del. quantity cm³/
 1000S.: 15.50...19.50
 Del. quantity cm³: 3.5
 1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 2000
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 37.00...43.00

Start:

Speed 1/min: 100
 Del. quantity cm³: 85.00...115.00
 mind 1000S.: 85.00

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 1200
 Charge press. hPa: 1000
 TD travel mm: 3.90...4.30
 mm: (3.40...4.80)
 4th speed 1/min: 800
 Charge press. hPa: 1000
 TD travel mm: 0.90...1.70
 mm: (0.60...2.00)
 5th speed 1/min: 1400
 Charge press. hPa: 1000
 TD travel mm: 4.50...5.30
 mm: (4.20...5.60)

Supply-pump pressure characteristic:

1st speed 1/min: 1800
 Charge press. hPa: 1000

Supply-pump pressure	bar: 7.40...8.00 bar: (7.20...8.20)	Del. quantity cm ³ /: 71.50...74.50 1000s.: (70.00...76.00)
2nd speed 1/min:	1200	Mech. shutoff:
Charge press.	hPa: 1000	Mech. Abstellung:
Supply-pump pressure	bar: 6.00...6.60 bar: (5.80...6.80)	1st speed 1/min: 1900
3rd speed 1/min:	800	Charge press. hPa: 1000
Charge press.	hPa: 1000	Del. quantity cm ³ /: 0.00...3.00 1000s.: (0.00...3.00)
Supply-pump pressure	bar: 5.00...5.60 bar: (4.80...5.80)	Electr. shutoff:
Overflow quantity at overflow valve:		
1st speed 1/min:	650	1st speed 1/min: 350
Charge press. hPa:	-	Charge press. hPa: -
Overflow quantity cm ³ /10s:	41.70...83.40 (26.70...98.40)	Del. quantity cm ³ /: 0.00...3.00 1000s.: (0.00...3.00)
2nd speed 1/min:	1800	Shutoff electromagnet volt: 12
Charge press. hPa:	1000	Idle delivery:
Overflow quantity cm ³ /10s:	55.60...139.00 (40.60...153.00)	1st speed 1/min: 350
Delivery-quant. and breakaway char.:		
1nd speed 1/min:	800*	Del. quantity cm ³ /: 15.50...19.50 1000s.: (12.50...22.50)
Charge-air pressure-setting point	hPa: 260	Dispersion cm ³ /: 3.5 1000s.: (3.5)
LDA-stroke mm:	4.7	2nd speed 1/min: 450
Del. quantity cm ³ /:	59.50...60.50 1000s.: (57.00...63.00)	Del. quantity cm ³ /: 0.00...3.00 1000s.: (0.00...3.00)
2nd speed 1/min:	2130	3rd speed 1/min: 400
Charge press. hPa:	1000	Del. quantity cm ³ /: 3.00...9.00 1000s.: (1.50...10.50)
Del. quantity cm ³ /:	0.00...3.00 1000s.: (0.00...3.00)	Automatic starting fuel delivery:
3rd speed 1/min:	2050	1st speed 1/min: 300
Charge press. hPa:	1000	Del. quantity cm ³ /: 85.00...115.00 1000s.: (85.00...115.00)
Del. quantity cm ³ /:	3.00...13.00 1000s.: (3.00...13.00)	2nd speed 1/min: 500
5th speed 1/min:	2000	Del. quantity cm ³ /: 55.00...85.00 1000s.: (55.00...85.00)
Charge press. hPa:	1000	4th speed 1/min: 100
Del. quantity cm ³ /:	37.00...43.00 1000s.: (36.00...44.00)	Del. quantity cm ³ /: 85.00...115.00 1000s.: (85.00...115.00)
9th speed 1/min:	1800	Shutoff electromagnet:
Charge press. hPa:	1000	Cut-in min voltage : 10.0
Del. quantity cm ³ /:	65.50...68.50 1000s.: (63.50...70.50)	Rated voltage : 12.0
12th speed 1/min:	1500	Mounting and assembly dimensions:
Charge press. hPa:	1000	Designation
Del. quynqty cm ³ /:	68.00...69.00 1000s.: (66.20...70.80)	K mm: -
18th speed 1/min:	650	KF mm: KOT
Del. quantity cm ³ /:	51.50...52.50 1000s.: (49.00...55.00)	MS mm: 1.1...1.5
20th speed 1/min:	800	
Charge press. hPa:	1000	

LDA stroke mm: 4.7

Remarks:

* Correction at adjusting nut (46)

Operate control lever after each
manifold-pressure compensator pressure
change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 5.9 D
 Edition : 08.11.91
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE6/11F1150R394
 Type number : 0 460 416 067
 Customer Part-No. :

Customer-specific information
 Customer : IVECO-FIAT

Engine : 8065.25.220

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 020

Opening
 Pressure bar: 172.00...175.00

Perforated-plate
 diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.3
 (from BDC): +0.02(0.04)

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 700
 Charge press. hPa: 1000
 Setting value mm: 2.20...2.60
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 700
 Charge press. hPa: 1000
 Setting value bar: 4.30...4.90
 Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1000
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 83.50...84.50
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/ : 3.5
 1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 74.00...75.00
 Shutoff
 electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 325
 Del. quantity cm³/
 1000S.: 16.00...20.00
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/ : 3.0
 1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 1260
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 47.00...53.00
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/ : 85.00...135.00
 mind 1000S.: 85.00
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed	1/min: 1000	1/min: 500
Charge press	hPa: 1000	Charge-air pressure-setting
TD travel	mm: 3.10...3.90	point hPa: 350
	mm: (2.80...4.20)	LDA-stroke mm: 4.7
Shutoff		Shutoff
electromagnet	Volt: 12	electromagnet Volt: 12
3rd speed	1/min: 700	Del. quantity cm ³ /: 79.00...80.00
Charge press	hPa: 1000	1000S.: (75.50...83.50)
TD travel	mm: 2.20...2.60	2nd speed 1/min: 1280
	mm: (1.70...3.10)	Charge press. hPa: 1000
Shutoff		Shutoff
electromagnet	Volt: 12	electromagnet Volt: 12
4th speed	1/min: 550	Del. quantity cm ³ /: 30.50...38.50
Charge press	hPa: 1000	1000S.: (29.50...39.50)
TD travel	mm: 0.80...1.60	3rd speed 1/min: 1350
	mm: (0.50...1.90)	Charge press. hPa: 1000
Shutoff		Shutoff
electromagnet	Volt: 12	electromagnet Volt: 12
Supply-pump pressure characteristic:		Del. quantity cm ³ /: 0.00...3.00
1st speed	1/min: 550	1000S.: (0.00...3.00)
Charge press.	hPa: 1000	5th speed 1/min: 1260
Supply-pump		Charge press. hPa: 1000
pressure	bar: 3.60...4.20	Shutoff
	bar: (3.30...4.50)	electromagnet Volt: 12
Shutoff		Del. quantity cm ³ /: 47.00...53.00
electromagnet	Volt: 12	1000S.: (44.00...56.00)
2nd speed	1/min: 700	9th speed 1/min: 1150
Charge press.	hPa: 1000	Charge press. hPa: 1000
Supply-pump		Shutoff
pressure	bar: 4.30...4.90	electromagnet Volt: 12
	bar: (4.00...5.20)	Del. quantity cm ³ /: 80.00...83.00
Shutoff		1000S.: (78.00...85.00)
electromagnet	Volt: 12	10th speed 1/min: 650
3rd speed	1/min: 1150	Charge press. hPa: 1000
Charge press.	hPa: 1000	Shutoff
Supply-pump		electromagnet Volt: 12
pressure	bar: 6.10...6.70	Del. quantity cm ³ /: 87.00...91.00
	bar: (5.80...7.00)	1000S.: (85.50...92.50)
Shutoff		12th speed 1/min: 1000
electromagnet	Volt: 12	Charge press. hPa: 1000
Overflow quantity at overflow valve:		Shutoff
1st speed	1/min: 500	electromagnet Volt: 12
Shutoff		Del. quantity cm ³ /: 83.50...84.50
electromagnet	Volt: 12	1000S.: (80.50...87.50)
Overflow	: 41.70...83.40	18th speed 1/min: 500
quantity	cm ³ /10s: (26.70...98.40)	Charge press. hPa: -
2nd speed	1/min: 1150	Shutoff
Charge press.	hPa: 1000	electromagnet Volt: 12
Shutoff		Del. quantity cm ³ /: 74.00...75.00
electromagnet	Volt: 12	1000S.: (71.00...78.00)
Overflow	: 55.60...139.00	20th speed 1/min: 500
quantity	cm ³ /10s: (40.60...153.00)	Charge press. hPa: 1000
Delivery-quant. and breakaway char.:		Shutoff
		electromagnet Volt: 12
		Del. quantity cm ³ /: 84.50...88.50
		1000S.: (83.00...90.00)
		Mech. shutoff:
		Mech. Abstellung:

1st speed	1/min: 1150		KF	mm: KOT
Charge press.	hPa: 1000		MS	mm: 1.0...1.4
Del. quantity	cm ³ /: 0.00...3.00		SVS max.	mm: 4.7
	1000s.: (0.00...3.00)		LDA stroke	mm: 4.7
Shutoff			XK	mm: 23.0...25.0
electromagnet volt:	12		XL	mm: 15.8...19.2
Electr. shutoff:			Remarks:	
1st speed	1/min: 325			:
Del. quantity	cm ³ /: 0.00...3.00			
	1000s.: (0.00...3.00)		* Correction at adjusting nut (46)	
Shutoff				
electromagnet volt:	-			
Idle delivery:				
1st speed	1/min: 325			
Shutoff				
electromagnet Volt:	12			
Del. quantity	cm ³ /: 16.00...20.00			
	1000s.: (14.00...22.00)			
Dispersion	cm ³ /: 3.0			
	1000s.: (4.0)			
2nd speed	1/min: 420			
Shutoff				
electromagnet Volt:	12			
Del. quantity	cm ³ /: 0.00...3.00			
	1000s.: (0.00...3.00)			
Automatic starting fuel delivery:				
1st speed	1/min: 150			
Shutoff				
electromagnet Volt:	12			
Del. quantity	cm ³ /: 85.00...135.00			
	1000s.: (85.00...135.00)			
2nd speed	1/min: 250			
Shutoff				
electromagnet Volt:	12			
Del. quantity	cm ³ /: 60.00...80.00			
	1000s.: (60.00...80.00)			
4th speed	1/min: 100			
Shutoff				
electromagnet Volt:	12			
Del. quantity	cm ³ /: 85.00...135.00			
	1000s.: (85.00...135.00)			
Shutoff electromagnet:				
Cut-in				
min voltage	: 10.0			
Rated voltage	: 12.0			
Mounting and assembly dimensions:				
Designation				
K	mm: -			

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 7.2 T3
 Edition : 08.11.91
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/11F1350R417-1
 Type number : 0 460 416 069
 Customer Part-No. :

Customer-specific information
 Customer : MAN

Engine : D 0826 GF01

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 109

Opening
 Pressure bar: 207.00...210.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.55
 (from BDC): +0.02(0.04)

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
 Setting value mm: 3.80...4.20
 Shutoff
 electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 800
 Setting value bar: 5.00...5.60
 Shutoff
 electromagnet Volt: 24
 Full-load del. with charge press.:
 Speed 1/min: 1000
 Del. quantity cm³/
 1000S.: 75.70...76.20
 Shutoff
 electromagnet Volt: 24
 Dispersion cm³/: 4.0
 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 300
 Del. quantity cm³/
 1000S.: 7.00...13.00
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 6.0
 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1410
 Del. quantity cm³/
 1000S.: 57.00...63.00
 Shutoff
 electromagnet Volt: 24
 Start:

Speed 1/min: 100
 Del. quantity cm³/: 35.00...75.00
 mind 1000S.: 35.00
 Shutoff
 electromagnet Volt: 24

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1350
 TD travel mm: 6.10...6.90
 mm: (5.80...7.20)
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 800
 TD travel mm: 3.80...4.20
 mm: (3.30...4.70)
 Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 600

TD travel	mm: 2.50...3.30 mm: (2.20...3.60)	Shutoff electromagnet Volt: 24
Shutoff electromagnet Volt: 24	6th speed 1/min: 1000	Del. quantity cm ³ /: 0.00...15.00 1000S.: (0.00...15.00)
TD travel	mm: 4.40...5.20 mm: (4.10...5.50)	4th speed 1/min: 1450
Shutoff electromagnet Volt: 24	Supply-pump pressure characteristic:	Del. quantity cm ³ /: 15.00...45.00 1000S.: (15.00...45.00)
1st speed 1/min: 600	1st speed 1/min: 600	5th speed 1/min: 1410
Supply-pump pressure bar: 4.20...4.80 bar: (3.90...5.10)	Supply-pump pressure bar: 5.00...5.60 bar: (4.70...5.90)	Shutoff electromagnet Volt: 24
Shutoff electromagnet Volt: 24	Supply-pump pressure bar: 7.00...7.60 bar: (6.70...7.90)	Del. quantity cm ³ /: 57.00...63.00 1000S.: (55.50...64.50)
2nd speed 1/min: 800	Shutoff electromagnet Volt: 24	9th speed 1/min: 1350
Supply-pump pressure bar: 5.00...5.60 bar: (4.70...5.90)	Supply-pump pressure bar: 7.00...7.60 bar: (6.70...7.90)	Shutoff electromagnet Volt: 24
Shutoff electromagnet Volt: 24	Shutoff electromagnet Volt: 24	Del. quantity cm ³ /: 75.20...78.20 1000S.: (73.70...79.70)
3rd speed 1/min: 1350	3rd speed 1/min: 1350	11th speed 1/min: 800
Supply-pump pressure bar: 5.80...6.40 bar: (5.50...6.70)	Supply-pump pressure bar: 5.80...6.40 bar: (5.50...6.70)	Shutoff electromagnet Volt: 24
Shutoff electromagnet Volt: 24	Shutoff electromagnet Volt: 24	Del. quantity cm ³ /: 74.20...78.20 1000S.: (72.70...79.70)
4th speed 1/min: 1000	4th speed 1/min: 1000	12th speed 1/min: 1000
Supply-pump pressure bar: 5.80...6.40 bar: (5.50...6.70)	Supply-pump pressure bar: 5.80...6.40 bar: (5.50...6.70)	Shutoff electromagnet Volt: 24
Shutoff electromagnet Volt: 24	Shutoff electromagnet Volt: 24	Del. quantity cm ³ /: 75.70...76.70 1000S.: (73.70...78.70)
Overflow quantity at overflow valve:	20th speed 1/min: 600	20th speed 1/min: 600
1st speed 1/min: 600	Overflow quantity cm ³ /10s: 41.70...83.40 cm ³ /10s: (26.70...98.40)	Shutoff electromagnet Volt: 24
Shutoff electromagnet Volt: 24	2nd speed 1/min: 1350	Electr. shutoff:
Overflow quantity cm ³ /10s: 55.60...139.00 cm ³ /10s: (40.60...153.00)	Shutoff electromagnet Volt: 24	1st speed 1/min: 300
Delivery-quant. and breakaway char.:	Overflow quantity cm ³ /10s: 55.60...139.00 cm ³ /10s: (40.60...153.00)	Del. quantity cm ³ /: 0.00...3.00 1000S.: (0.00...3.00)
2nd speed 1/min: 1550	2nd speed 1/min: 1550	Shutoff electromagnet Volt: 24
Shutoff electromagnet Volt: 24	Shutoff electromagnet Volt: 24	Del. quantity cm ³ /: 7.00...13.00 1000S.: (5.00...15.00)
Del. quantity cm ³ /: 0.00...3.00 1000S.: (0.00...3.00)	Dispersion cm ³ /: 6.0	Dispersion cm ³ /: 6.0 1000S.: (6.5)
3rd speed 1/min: 1500	2nd speed 1/min: 450	

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 350

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...120.00
1000s.: (60.00...120.00)

2nd speed 1/min: 500

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 40.00...70.00
1000s.: (40.00...70.00)

4th speed 1/min: 100

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 35.00...75.00
1000s.: (35.00...75.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.6...6.0
SVS max. mm: 3.7

Remarks:
: MAN NR.: 7032
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 7.2 T5
 Edition : 12.11.91
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/11F1350R475-1
 Type number : 0 460 416 072
 Customer Part-No. :

Customer-specific information
 Customer : MAN

Engine : D 0826 OH 02

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 109

Opening
 Pressure bar: 207.00...210.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.55
 (from BDC): +0.02(0.04)

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Setting value mm: 1.80...2.20

Supply-pump pressure

Speed	1/min: 1000
Setting value	bar: 6.50...7.10
Full-load del. w/out charge press.:	
Speed	1/min: 1000
Del. quantity cm ³ /	
1000S.:	78.00...79.00
Dispersion	cm ³ /: 4.0
	1000S.: (4.5)
Low-idle speed regulation	
Speed	1/min: 300
Del. quantity cm ³ /	
1000S.:	7.00...13.00
Del. quantity cm ³ /:	6.0
	1000S.: (6.5)
Full-load speed regulation	
Speed	1/min: 1410
Del. quantity cm ³ /	
1000S.:	57.00...63.00
Start:	
Speed	1/min: 100
Del. quantity cm ³ /:	35.00...85.00
mind	1000S.: 35.00
Inspection-pump test specifications	
Test specifications in parentheses	
Timing-device characteristic:	
2nd speed	1/min: 1350
TD travel	mm: 3.80...4.60
	mm: (3.80...4.60)
3rd speed	1/min: 1000
TD travel	mm: 1.80...2.20
	mm: (1.30...2.70)
4th speed	1/min: 900
TD travel	mm: 0.90...1.70
	mm: (0.60...2.00)
Supply-pump pressure characteristic:	
1st speed	1/min: 600
Supply-pump	pressure
	bar: 4.60...5.20
	bar: (4.30...5.50)
2nd speed	1/min: 1000
Supply-pump	pressure
	bar: 6.50...7.10
	bar: (6.20...7.40)
3rd speed	1/min: 1350
Supply-pump	pressure
	bar: 8.00...8.60
	bar: (7.70...8.90)

Overflow quantity at overflow valve:

1st speed 1/min: 600
Overflow quantity cm³/10s: (41.70...83.40)
2nd speed 1/min: 1350
Overflow quantity cm³/10s: (26.70...98.40)
3rd speed 1/min: 1350
Overflow quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1550
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)
3rd speed 1/min: 1500
Del. quantity cm³/: 0.00...15.00
1000s.: (0.00...15.00)
4th speed 1/min: 1450
Del. quantity cm³/: 15.00...45.00
1000s.: (15.00...45.00)
5th speed 1/min: 1410
Del. quantity cm³/: 57.00...63.00
1000s.: (53.50...66.50)
9th speed 1/min: 1350
Del. quantity cm³/: 77.00...80.00
1000s.: (75.50...81.50)
12th speed 1/min: 1000
Del. quantity cm³/: 78.00...79.00
1000s.: (76.00...81.00)
15th speed 1/min: 800
Del. quantity cm³/: 75.00...79.00
1000s.: (73.50...80.50)
20th speed 1/min: 600
Del. quantity cm³/: 55.50...62.50
1000s.: (54.50...63.50)

Mech. shutoff:

Mech. Abstellung:

1st speed 1/min: 1350
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 300
Del. quantity cm³/: 7.00...13.00
1000s.: (5.00...15.00)
Dispersion cm³/: 6.0
1000s.: (6.5)
2nd speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 350

Del. quantity cm³/: 60.00...120.00
1000s.: (60.00...120.00)

2nd speed 1/min: 500
Del. quantity cm³/: 40.00...70.00
1000s.: (40.00...70.00)

4th speed 1/min: 100
Del. quantity cm³/: 35.00...85.00
1000s.: (35.00...85.00)

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.6...6.0
MS	mm: 0.7
SVS max.	mm: 3.5

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 7.2 T4
 Edition : 08.11.91
 replaces : -
 Calibrating oil : ISO-4113

Injection pump : VE6/11F1350R417-3
 Type number : 0 460 416 073
 Customer Part-No. :

Customer-specific information
 Customer : MAN

Engine : D 0826 F 02

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 109

Opening
 Pressure bar: 207.00...210.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.55
 (from BDC): +0.02(0.04)

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Setting value mm: 1.80...2.20

Supply-pump pressure

Speed 1/min: 1000
 Setting value bar: 5.00...5.60

Full-load del. with charge press.:

Speed 1/min: 1000
 Del. quantity cm³/
 1000S.: 78.00...79.00
 Dispersion cm³/ : 4.0
 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 300
 Del. quantity cm³/
 1000S.: 7.00...13.00
 Del. quantity cm³/ : 6.0
 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1410
 Del. quantity cm³/
 1000S.: 57.00...63.00

Start:

Speed 1/min: 100
 Del. quantity cm³/ : 35.00...85.00
 mind 1000S.: 35.00

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed	1/min: 1100
TD travel	mm: 2.50...3.30
	mm: (2.20...3.60)
3rd speed	1/min: 1000
TD travel	mm: 1.80...2.20
	mm: (1.30...2.70)
4th speed	1/min: 900
TD travel	mm: 0.70...1.50
	mm: (0.40...1.80)
5th speed	1/min: 1350
TD travel	mm: 4.50...5.30
	mm: (4.50...5.30)

Supply-pump pressure characteristic:

1st speed	1/min: 600
Supply-pump pressure	bar: 3.00...3.60
	bar: (2.70...3.90)
2nd speed	1/min: 1000
Supply-pump pressure	bar: 5.00...5.60
	bar: (4.70...5.90)
3rd speed	1/min: 1350

Supply-pump pressure	bar: 7.00...7.60 bar: (6.70...7.90)	1st speed 1/min: 350 Del. quantity cm ³ /: 60.00...120.00 1000S.: (60.00...120.00)
Overflow quantity at overflow valve:		
1st speed	1/min: 600	2nd speed 1/min: 500
Overflow quantity	: 41.70...83.40 cm ³ /10s: (26.70...98.40)	Del. quantity cm ³ /: 40.00...70.00 1000S.: (40.00...70.00)
2nd speed	1/min: 1350	4th speed 1/min: 100
Overflow quantity	: 55.60...139.00 cm ³ /10s: (40.60...154.00)	Del. quantity cm ³ /: 35.00...85.00 1000S.: (35.00...85.00)
Delivery-quant. and breakaway char.:		Mounting and assembly dimensions:
2nd speed	1/min: 1550	Designation
Del. quantity cm ³ /	: 0.00...3.00	K mm: -
	1000S.: (0.00...3.00)	KF mm: 5.6...6.0
3rd speed	1/min: 1500	SVS max. mm: 3.4
Del. quantity cm ³ /	: 0.00...15.00	Remarks:
	1000S.: (0.00...15.00)	: MAN NR.: 7160
4th speed	1/min: 1450	:
Del. quantity cm ³ /	: 15.00...45.00	
	1000S.: (15.00...45.00)	
5th speed	1/min: 1410	
Del. quantity cm ³ /	: 57.00...63.00	
	1000S.: (53.50...66.50)	
9th speed	1/min: 1350	
Del. quantity cm ³ /	: 77.00...80.00	
	1000S.: (75.50...81.50)	
11th speed	1/min: 800	
Del. quantity cm ³ /	: 75.00...79.00	
	1000S.: (73.50...80.50)	
12th speed	1/min: 1000	
Del. quantity cm ³ /	: 78.00...79.00	
	1000S.: (76.00...82.00)	
20th speed	1/min: 600	
Del. quantity cm ³ /	: 58.00...64.00	
	1000S.: (57.00...65.00)	
Mech. shutoff:		
Mech. Abstellung:		
1st speed	1/min: 1350	
Del. quantity cm ³ /	: 0.00...3.00	
	1000S.: (0.00...3.00)	
Idle delivery:		
1st speed	1/min: 300	
Del. quantity cm ³ /	: 7.00...13.00	
	1000S.: (4.50...15.50)	
Dispersion	cm ³ /: 6.0	
	1000S.: (6.5)	
2nd speed	1/min: 450	
Del. quantity cm ³ /	: 0.00...3.00	
	1000S.: (0.00...3.00)	
Automatic starting fuel delivery:		

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 5.9 D1
 Edition : 11.11.91
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1350R404
 Type number : 0 460 426 169
 Customer Part-No. :

Customer-specific information
 Customer : IVECO-FIAT

Engine : 8060.25.4200

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery

Indicator setting
 Piston stroke mm: 1.0
 Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 1.30...1.70

Shutoff
 electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value bar: 5.90...6.50
 Shutoff
 electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 61.50...62.50
 Shutoff
 electromagnet Volt: 24
 Dispersion cm³/ : 3.5
 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
 Del. quantity cm³/
 1000S.: 49.00...50.00
 Shutoff
 electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 250
 Del. quantity cm³/
 1000S.: 13.00...17.00
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/ : 4.0
 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1475
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 38.00...46.00
 Shutoff
 electromagnet Volt: 24

Start:

Speed 1/min: 100
 Del. quantity cm³/ : 60.00...110.00
 mind 1000S.: 60.00
 Shutoff
 electromagnet Volt: 24

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 1.30...1.70
 mm: (0.60...2.40)
 Shutoff electromagnet Volt: 24
 3rd speed 1/min: 1100
 Charge press hPa: 1000
 TD travel mm: 2.20...3.00
 mm: (1.70...3.50)
 Shutoff electromagnet Volt: 24
 4th speed 1/min: 1350
 Charge press hPa: 1000
 TD travel mm: 3.70...4.50
 mm: (3.20...5.00)
 Shutoff electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump pressure bar: 5.90...6.50
 bar: (5.60...6.80)
 Shutoff electromagnet Volt: 24
 2nd speed 1/min: 600
 Charge press. hPa: 1000
 Supply-pump pressure bar: 4.00...4.60
 bar: (3.70...4.90)
 Shutoff electromagnet Volt: 24
 3rd speed 1/min: 1350
 Charge press. hPa: 1000
 Supply-pump pressure bar: 7.50...8.10
 bar: (7.20...8.40)
 Shutoff electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 1150
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600*
 Charge-air pressure-setting point hPa: 225
 LDA-stroke mm: 5.7
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 57.50...58.50
 1000s.: (54.00...62.00)
 2nd speed 1/min: 1475
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 38.00...46.00
 1000s.: (34.00...48.00)
 3rd speed 1/min: 1600
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 5th speed 1/min: 1525
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 22.00...28.00
 1000s.: (19.00...31.00)
 9th speed 1/min: 1350
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 53.50...56.50
 1000s.: (51.50...58.50)
 10th speed 1/min: 1200
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 56.00...60.00
 1000s.: (54.50...61.50)
 12th speed 1/min: 700
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 61.50...62.50
 1000s.: (58.50...65.50)
 18th speed 1/min: 600
 Charge press. hPa: -
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 49.00...50.00
 1000s.: (46.00...53.00)
 20th speed 1/min: 600
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³/: 62.00...66.00
 1000s.: (60.50...67.50)

Mech. shutoff:

Mech. Abstellung:

1st speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)
Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 250
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)
Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 13.00...17.00
1000s.: (10.00...20.00)
Dispersion cm³/: 2.0
1000s.: (5.0)
2nd speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000s.: (60.00...110.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...80.00
1000s.: (60.00...80.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000s.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: 3.7
KF	mm: KOT
MS	mm: 0.7...1.1
LDA stroke	mm: 5.7
XK	mm: 20.0...22.0
XL	mm: 9.8...13.2

Remarks:

* Correction at adjusting nut (46)

Operate control lever after each
manifold-pressure compensator pressure
change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 5.9 D2
 Edition : 11.11.91
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1350R404-1
 Type number : 0 460 426 170
 Customer Part-No. :

Customer-specific information
 Customer : IVECO-FIAT

Engine : 8060.45.4100

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery

Indicator setting
 Piston stroke mm: 1.0
 Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 1.30...1.70

Shutoff
 electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value bar: 5.90...6.50
 Shutoff
 electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 72.50...73.50
 Shutoff
 electromagnet Volt: 24
 Dispersion cm³/ : 3.5
 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
 Del. quantity cm³/
 1000S.: 41.50...42.50
 Shutoff
 electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 250
 Del. quantity cm³/
 1000S.: 13.00...17.00
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/ : 4.0
 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1475
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 38.00...46.00
 Shutoff
 electromagnet Volt: 24

Start:

Speed 1/min: 100
 Del. quantity cm³/ : 60.00...110.00
 mind 1000S.: 60.00
 Shutoff
 electromagnet Volt: 24

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 1.30...1.70
 mm: (0.60...2.40)
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1100
 Charge press hPa: 1000
 TD travel mm: 2.20...3.00
 mm: (1.70...3.50)
 Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 1350
 Charge press hPa: 1000
 TD travel mm: 3.70...4.50
 mm: (3.20...5.00)
 Shutoff
 electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 5.90...6.50
 bar: (5.60...6.80)
 Shutoff
 electromagnet Volt: 24
 2nd speed 1/min: 600
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 4.00...4.60
 bar: (3.70...4.90)
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1350
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 7.40...8.00
 bar: (7.10...8.30)
 Shutoff
 electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 1150
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600*
 Charge-air pressure-setting
 point hPa: 400
 LDA-stroke mm: 7.2
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 61.00...62.00
 1000s.: (57.50...65.50)
 2nd speed 1/min: 1475
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 38.00...46.00
 1000s.: (34.00...48.00)
 3rd speed 1/min: 1600
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 5th speed 1/min: 1525
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 22.00...28.00
 1000s.: (19.00...31.00)
 9th speed 1/min: 1350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 61.50...64.50
 1000s.: (59.50...66.50)
 10th speed 1/min: 1200
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 53.50...57.50
 1000s.: (62.00...69.00)
 12th speed 1/min: 700
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 72.50...73.50
 1000s.: (69.50...76.50)
 18th speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 41.50...42.50
 1000s.: (38.50...45.50)
 20th speed 1/min: 600
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 75.00...79.00
 1000s.: (73.50...80.50)

Mech. shutoff:

Mech. Abstellung:

1st speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 250
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 13.00...17.00
1000S.: (10.00...20.00)
Dispersion cm³/: 2.0
1000S.: (5.0)
2nd speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...80.00
1000S.: (60.00...80.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: 3.7
KF mm: KOT
MS mm: 0.7...1.1
LDA stroke mm: 7.2

Remarks:

* Correction at adjusting nut (46)

Operate control lever after each
manifold-pressure compensator pressure
change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 5.9 D3
 Edition : 11.11.91
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1350R404-2
 Type number : Ø 460 426 171
 Customer Part-No. :

Customer-specific information
 Customer : IVECO-FIAT

Engine : 8060.25.4000

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery

Indicator setting
 Piston stroke mm: 1.0
 Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 0.90...1.30

Shutoff
 electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value bar: 6.10...6.70
 Shutoff
 electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 78.00...79.00
 Shutoff
 electromagnet Volt: 24
 Dispersion cm³/ : 3.5
 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
 Del. quantity cm³/
 1000S.: 50.00...51.00
 Shutoff
 electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 250
 Del. quantity cm³/
 1000S.: 13.00...17.00
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/ : 4.0
 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1475
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 49.00...57.00
 Shutoff
 electromagnet Volt: 24

Start:

Speed 1/min: 100
 Del. quantity cm³/ : 70.00...120.00
 mind 1000S.: 70.00
 Shutoff
 electromagnet Volt: 24

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 0.90...1.30
 mm: (0.20...2.00)

Shutoff electromagnet Volt: 24
 3rd speed 1/min: 1100
 Charge press hPa: 1000
 TD travel mm: 1.90...2.70
 mm: (1.40...3.20)

Shutoff electromagnet Volt: 24
 4th speed 1/min: 1350
 Charge press hPa: 1000
 TD travel mm: 3.70...4.50
 mm: (3.20...5.00)

Shutoff electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.10...6.70
 bar: (5.80...7.00)

Shutoff electromagnet Volt: 24
 2nd speed 1/min: 600
 Charge press. hPa: 1000
 Supply-pump pressure bar: 4.20...4.80
 bar: (3.90...5.10)

Shutoff electromagnet Volt: 24
 3rd speed 1/min: 1350
 Charge press. hPa: 1000
 Supply-pump pressure bar: 7.70...8.30
 bar: (7.40...8.60)

Shutoff electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 1150
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600*
 Charge-air pressure-setting point hPa: 400
 LDA-stroke mm: 7.0
 Shutoff electromagnet Volt: 24
 Del. quantity cm³: 66.50...67.50
 1000S.: (57.50...65.50)

2nd speed 1/min: 1475
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³: 49.00...57.00
 1000S.: (47.00...59.00)

3rd speed 1/min: 1625
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³: 0.00...3.00
 1000S.: (0.00...3.00)

5th speed 1/min: 1525
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³: 31.00...37.00
 1000S.: (28.00...40.00)

9th speed 1/min: 1350
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³: 68.00...71.00
 1000S.: (66.00...73.00)

10th speed 1/min: 1200
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³: 71.50...77.50
 1000S.: (70.00...77.00)

12th speed 1/min: 700
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³: 78.00...79.00
 1000S.: (75.00...82.00)

18th speed 1/min: 600
 Charge press. hPa: -
 Shutoff electromagnet Volt: 24
 Del. quantity cm³: 50.00...51.00
 1000S.: (47.00...54.00)

20th speed 1/min: 600
 Charge press. hPa: 1000
 Shutoff electromagnet Volt: 24
 Del. quantity cm³: 80.00...84.00
 1000S.: (78.50...85.50)

Mech. shutoff:

Mech. Abstellung:

1st speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 250
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff electromagnet volt: -

Idle delivery:

1st speed 1/min: 250
Shutoff electromagnet Volt: 24
Del. quantity cm³/: 13.00...17.00
1000S.: (10.00...20.00)
Dispersion cm³/: 2.0
1000S.: (5.0)
2nd speed 1/min: 375
Shutoff electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff electromagnet Volt: 24
Del. quantity cm³/: 70.00...120.00
1000S.: (70.00...120.00)

2nd speed 1/min: 250
Shutoff electromagnet Volt: 24
Del. quantity cm³/: 40.00...60.00
1000S.: (40.00...60.00)

4th speed 1/min: 100
Shutoff electromagnet Volt: 24
Del. quantity cm³/: 70.00...120.00
1000S.: (70.00...120.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: 3.7
KF	mm: KOT
MS	mm: 0.7...1.1
LDA stroke	mm: 7.0
XK	mm: 20.0...22.0
XL	mm: 11.9...15.3

Remarks:

:
* Correction at adjusting nut (46)

Operate control lever after each manifold-pressure compensator pressure change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1.3 C

Edition : 12.11.91

replaces :

Calibrating oil : ISO-4113

Injection pump : VE4/8F2400R465

Type number : 0 460 484 053

Customer Part-No. :

Customer-specific information

Customer : FIAT-AUTO

Engine : M709 BT 13.L

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp. °C

with thermometer : 40.00...48.00

Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00

x Wall thickness : 2.00

x Length mm: 450

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500

Charge press. hPa: 1000

Setting value mm: 4.60...5.00

AFB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 2000

Charge press. hPa: 1000

Setting value bar: 6.80...7.40

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500

Charge press. hPa: 1000

Del. quantity cm³/

1000S.: 40.10...41.10

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Dispersion cm³/: 3.0

1000S.: (3.5)

Full-load del. w/out charge press.:

Speed 1/min: 750

Del. quantity cm³/

1000S.: 23.40...24.40

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KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400

Del. quantity cm³/

1000S.: 6.00...10.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 3.0

1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 2550

Charge press. hPa: 1000

Del. quantity cm³/

1000S.: 28.00...34.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm³/: 33.00...63.00

mind 1000S.: 33.00

KSB/AFB

Valve Volt: 12

Shutoff electromagnet Volt: 12	TD travel KSB/AFB valve Shutoff electromagnet Volt: 12	mm: 1.00...1.80 mm: (0.50...2.30)
Load-dependent start of delivery: Inj.-qty.dif.measurement:	6th speed 1/min: 2000 Charge press. hPa: 1000	Volt: 12
Speed 1/min: 1500 Charge press hPa: 1000 Inj.-qty. cm ³ / difference 1000S.: 23.00...29.00	TD travel KSB/AFB valve Shutoff electromagnet Volt: 12	mm: 6.70...7.30 mm: (6.30...7.70)
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 TD-travel dif.measurement correttore anticipo iniezione (SV) 1.Speed 1/min: 1500 Charge press hPa: 1000	9th speed 1/min: 300 Charge press. hPa: 1000	Volt: 12
TD-travel difference mm: 0.70...0.90	TD travel KSB/AFB valve Shutoff electromagnet Volt: 12	mm: 2.30...4.70 mm: (2.30...4.70)
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 SP press.-dif.measurement pompa di manda (FP) 1.Speed 1/min: 1500 Charge press hPa: 1000	KSB/AFB valve Shutoff electromagnet Volt: 12	Volt: -
Supply pump pressure difference bar: 0.10...0.30	Supply-pump pressure 1st speed 1/min: 2400 Charge press. hPa: 1000	Supply-pump pressure characteristic:
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12	Supply-pump pressure 2nd speed 1/min: 2000 Charge press. hPa: 1000	1st speed 1/min: 2400 Charge press. hPa: 1000
Inspection-pump test specifications Test specifications in parentheses	Supply-pump pressure 3rd speed 1/min: 1500 Charge press. hPa: 1000	bar: 7.80...8.40 bar: (7.60...8.60)
Timing-device characteristic:	Supply-pump pressure 4th speed 1/min: 750 Charge press. hPa: 1000	bar: 6.80...7.40 bar: (6.60...7.60)
2nd speed 1/min: 2400 Charge press hPa: 1000 TD travel mm: 8.60...9.40 mm: (8.30...9.70)	KSB/AFB valve Shutoff electromagnet Volt: 12	bar: 5.70...6.30 bar: (5.50...6.50)
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1500 Charge press hPa: 1000	Supply-pump pressure 5th speed 1/min: 750 Charge press. hPa: 1000	bar: 3.90...4.50 bar: (3.70...4.70)
TD travel mm: 4.60...5.00 mm: (3.80...5.20)	KSB/AFB valve Shutoff electromagnet Volt: 12	Volt: 12
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 750 Charge press hPa: 1000	Supply-pump pressure 6th speed 1/min: 750 Charge press. hPa: 1000	

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

4th speed 1/min: 1500
Charge press. hPa: 1000
Inj.-qty. cm³/: 23.00...29.00
difference 1000S.: (22.00...30.00)
KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

2nd speed 1/min: 1500
Charge press. hPa: 1000
TD-travel : 0.70...0.90
difference mm: (0.70...0.90)
KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

2nd speed 1/min: 1500

Charge press. hPa: 1000
Supply pump-

pressure : 0.10...0.30

difference bar: (0.10...0.30)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 350

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 23.00...53.00
1000S.: (23.00...53.00)

2nd speed 1/min: 450

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 20.00...40.00
1000S.: (20.00...40.00)

4th speed 1/min: 100

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 33.00...63.00
1000S.: (33.00...63.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: 5.2...5.6

MS mm: 1.5

SVS max. mm: -

LDA stroke mm: 6.6

* Correction at adjusting nut (46)
remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 1.9 K6
 Edition : 11.11.91
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/9F2300R426
 Type number : 0 460 494 279
 Customer Part-No. :

Customer-specific information

Customer : PSA
 Engine : XUD 9/Y-N2

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery

Indicator setting
 Piston stroke mm: 0.3
 Outlet : B

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 4.00...4.40
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Setting value bar: 4.90...5.50
 Shutoff
 electromagnet Volt: 12
 Full-load del. with charge press.:
 Speed 1/min: 1250
 Del. quantity cm³/
 1000S.: 28.00...29.00
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 2.0
 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
 Del. quantity cm³/
 1000S.: 2.50...3.50
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2440
 Del. quantity cm³/
 1000S.: 21.00...25.00
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 44.00...74.00
 mind 1000S.: 44.00
 Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Charge press hPa: 12
 Inj.-qty. cm³/
 difference 1000S.: 6.00...10.00
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1250
 TD-travel

difference mm: 0.70...0.90
 Shutoff

electromagnet Volt: 12

SP press.-dif.measurement
 pompa di mandata (FP)

1.Speed 1/min: 1250

Supply pump			
pressure difference	bar: 0.60...10.00		
Shutoff			
electromagnet Volt:	12		
Inspection-pump test specifications			
Test specifications in parentheses			
Timing-device characteristic:			
2nd speed	1/min: 2000		
TD travel	mm: 7.60...8.40		
	mm: (7.30...8.70)		
Shutoff			
electromagnet Volt:	12		
3rd speed	1/min: 1250		
TD travel	mm: 4.00...4.40		
	mm: (3.50...4.90)		
Shutoff			
electromagnet Volt:	12		
4th speed	1/min: 800		
TD travel	mm: 1.50...2.30		
	mm: (1.20...2.60)		
Shutoff			
electromagnet Volt:	12		
Supply-pump pressure characteristic:			
1st speed	1/min: 500		
Supply-pump pressure	bar: 2.80...3.40		
	bar: (2.60...3.60)		
Shutoff			
electromagnet Volt:	12		
2nd speed	1/min: 1250		
Supply-pump pressure	bar: 4.90...5.50		
	bar: (4.70...5.70)		
Shutoff			
electromagnet Volt:	12		
3rd speed	1/min: 2250		
Supply-pump pressure	bar: 7.60...8.20		
	bar: (7.40...8.40)		
Shutoff			
electromagnet Volt:	12		
Overflow quantity at overflow valve:			
1st speed	1/min: 500		
Shutoff			
electromagnet Volt:	12		
Overflow	: 41.70...83.40		
quantity cm ³ /10s:	(26.80...98.30)		
2nd speed	1/min: 2250		
Shutoff			
electromagnet Volt:	12		
Overflow	: 55.60...138.90		
quantity cm ³ /10s:	(40.70...152.90)		
Delivery-quant. and breakaway char.:			
2nd speed	1/min: 2750		
Shutoff			
electromagnet Volt:	12		
Del. quantity cm ³ :	0.00...6.00		
	1000s.: (0.00...6.00)		
3rd speed	1/min: 2540		
Shutoff			
electromagnet Volt:	12		
Del. quantity cm ³ :	10.00...16.00		
	1000s.: (8.00...18.00)		
5th speed	1/min: 2440		
Shutoff			
electromagnet Volt:	12		
Del. quantity cm ³ :	21.00...25.00		
	1000s.: (19.00...27.00)		
9th speed	1/min: 2250		
Shutoff			
electromagnet Volt:	12		
Del. quantity cm ³ :	29.20...31.20		
	1000s.: (28.00...32.40)		
12th speed	1/min: 1250		
Shutoff			
electromagnet Volt:	12		
Del. quantity cm ³ :	28.00...29.00		
	1000s.: (26.30...30.70)		
20th speed	1/min: 500		
Shutoff			
electromagnet Volt:	12		
Del. quantity cm ³ :	28.50...31.50		
	1000s.: (27.00...33.00)		
Mech. shutoff:			
Mech. Abstellung:			
1st speed	1/min: 2250		
Del. quantity cm ³ :	0.00...3.00		
	1000s.: (0.00...3.00)		
Shutoff			
electromagnet volt:	12		
Electr. shutoff:			
1st speed	1/min: 375		
Del. quantity cm ³ :	0.00...3.00		
	1000s.: (0.00...3.00)		
Shutoff			
electromagnet volt:	-		
Idle delivery:			
Damper set qty.:			
1st speed	1/min: 1125		
Shutoff			
electromagnet Volt:	12		

Del. quantity cm³/: 17.00...19.00
1000S.: (14.00...22.00)

LFG-setting:

solidale con carcassa:
Idle delivery:

1st speed 1/min: 375

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

High Idle:

1st speed 1/min: 470

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

Residual:

1.Rotacao 1/min: 550

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 2.50...3.50
1000S.: (1.00...5.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

3rd speed 1/min: 1250

Inj.-qty. cm³/: 6.00...10.00

difference 1000S.: (3.00...13.00)

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):

1st speed 1/min: 1250

TD-travel : 0.70...0.90

difference mm: (0.70...0.90)

Shutoff

electromagnet Volt: 12

3rd speed 1/min: 1250

Supply pump-

pressure : 0.60...1.00

difference bar: (0.40...1.20)

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 225

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 46.00...80.00
1000S.: (46.00...80.00)

2nd speed 1/min: 350

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 15.00...35.00
1000S.: (15.00...35.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 44.00...74.00
1000S.: (44.00...74.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: 5.6...6.0

MS mm: 0.8...1.2

Remarks:

:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 3,0 W
 Edition : 26.11.91
 Replaces : 06.04.88
 Test oil : ISO-4113

 Combination no. : 0 400 076 994

 Injection pump
 Pump designation : PES6M55C320RS156
 EP type number : 0 410 056 995
 Governor
 Governor design. : RSF315/2300M59-3
 Governer no. : 0 420 021 040

 Customer-spec. information
 Customer : DB

 Engine : OM603-3.0

 1st version kW : 80.0

TEST BENCH REQUIREMENTS

 Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 469 990 351

 Inlet press., bar : 1.00

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test Lines : 1 680 750 014

 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

 Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 20.00...22.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

 Tolerance + - ° : 0.00 (1.00)

 Time to cyl. no. : 1

BASIC SETTING

 1st speed rpm : 1000

 Rack travel in mm : 11.30...11.40

 Del.quantity cm³/ : 3.1...3.2

 100 s: (3.0...3.3)

 Spread cm³ : 0.2

 100 s: (0.3)

 2nd speed rpm : 290.0
 Rack travel in mm : 5.4...5.6
 Del.quantity cm³/ : 0.5...0.6

 100 s: (0.5...0.9)
 Spread cm³ : 0.1

 100 s: (0.1)

FULL LOAD DELIV. AT FULL LOAD STOP

 1st version
 Speed rpm : 1000
 Del.quantity : 31.5...32.5

 1000 : (30.5...33.5)
 Spread cm³ : 2.50

 1000 : (3.00)

RATED SPEED

 1st version
 Control lever position degrees: 50...0
 3rd rack travel in: 7,80...8,20

 Speed rpm : 2500
 4th rack travel in: 2950

 Speed rpm : 0.00...1.00

SET IDLE CONTROL LEVER POSITION

 Speed rpm : 1000
 Rack travel in mm : 0,9...1,0

LOW IDLE 1
 Control lever position degrees: 13...17
 Setting point w/out bumper spring
 Speed rpm : 290

Rack travel in mm : 5.5

Testing:

Speed rpm : 220
Minimum rack travel: 7.00
Speed rpm : 290
Rack travel in mm : 5.40...5.60
Rack travel in mm : 1.50
Speed rpm : 620...720
Speed rpm : 1000
Maximum rack travel: 1.00

SET IDLE AUXILIARY SPRING

Speed rpm : 360
Rack travel in mm : 4,20...4,40
: (4,10...4,50)

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.30...11.40
2nd speed rpm : 1800
Rack travel in m: 10.90...11.10
3rd speed rpm : 2200
Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1800
Del.quantity cm³/ : 34.0...35.5
1000 s: (33.0...36.5)
Spread cm³ : 2.50
1000 s: (3.00)
Speed rpm : 2200
Del.quantity cm³/ : 33.5...35.5
1000 s: (32.5...36.5)
Spread cm³ : 2.50
1000 s: (3.00)

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 55.0...0.0
1000 s: (55.0...0.0)
Rack travel in mm : 20.10...0.00

HIGH IDLE

1st version

Speed rpm : 2500
Rack travel in mm : 7.80...8.20
Del.quantity cm³/ : 22.0...26.0
1000 s: (21.0...27.0)
Spread cm³ : 2.50
1000 s: (3.00)

LOW IDLE

Speed rpm : 290
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 5.5...6.5
1000 s: (5.0...9.5)
Spread cm³ : 1.00
1000 s: (1.50)

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

Control lever at idle stop
Speed rpm : 315
Rack travel in mm : (12,6...14,0)
Del.quantity cm³/ : -
1000 s: 32,0...40,0
Current A : 1,8

Control lever at full-load stop
Speed rpm : 2950
Rack travel in mm : 0,0...1,0
Current short-duration A : 3,0
Starting test
Speed rpm : 100
Del.quantity cm³/ : -
min. 1000 s: 55,0

Remarks:

:
Start-of-delivery sensor system:
adjustment and blocking with device
KDEP 1077 = 19.3°...19.7°
(19.2...19.8°) angular displacement of
cam following start of delivery of
cylinder no. 1.
Difference in start of delivery between
max. and min. value = max. 1° angular
displacement of cam

CHECKING THE PNEUMATIC SHUTOFF BOX
-Control lever up against idle stop.
At n = 290 1/min and pu = 450 mbar
control rod must move briskly to
control-rod travel = 0 mm

CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position 49°, max.
0.2 mm control-rod travel deduction
allowable after switchover point (of
starting cam) up to 1000 1/min.
Control-lever position 46.5°,
control-rod travel deduction must be

greater than 0.2 mm after switchover
point (of starting cam).



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : STE 6,0 i
 Edition : 29.11.91
 Replaces : 16.11.90
 Test oil : ISO-4113

Combination no. : 0 400 656 152

Injection pump
 Pump designation : PE6A90D412RS2507
 EP type number : 0 410 696 178
 Governor
 Governor design. : RQV300...1400AB970DL
 Governor no. : 0 420 214 222

Customer-spec. information
 Customer : SNF

Engine : WD61039

1st version kW : 97.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 8.50...8.60

Del.quantity cm³/ : 5.5...5.6

100 s: (5.3...5.8)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 300.0

Rack travel in mm : 7.5...7.7

Del.quantity cm³/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1565

Rack travel in mm : 6.20...8.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 55.5...56.5

1000 : (53.5...58.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 7.50

Speed rpm : 1440...1450

2nd rack travel in: 4.00

Speed rpm : 1480...1510

4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 73...81

APPLICATION

Special-purpose vehicle

Testing:

Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 350...450

TORQUE CONTROL

Dimension a mm : 1.10
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 8.50...8.60
2nd speed rpm : 500
Rack travel in m: 9.60...9.70
3rd speed rpm : 905
Rack travel in m: 9.20...9.40
4th speed rpm : 1060
Rack travel in m: 8.70...8.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 900
Del.quantity cm³/ : 52.5...54.5
1000 s: (50.0...57.0)
Speed rpm : 500
Del.quantity cm³/ : 44.5...46.5
1000 s: (42.0...49.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 7.50
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 110.0...120.0
1000 s: (107.0...123.0)
Rack travel in mm : 15.30...15.70

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 b 9
 Edition : 29.11.91
 Replaces : 2.5.90
 Test oil : ISO-4113

Combination no. : 0 400 836 041

Injection pump
 Pump designation : PES6A100D320/3RS2691
 -2

EP type number : 9 410 230 028

Governor

Governor design. : RQV350...1100AB1227-
 1R

Governor no. : 0 420 213 113

Customer-spec. information

Customer : CDC

Engine : 6 CT 8.3

1st version kW : 157.0

Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values

Insp. values in parentheses

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing :

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.60...12.70

Del.quantity cm3/ : 12.6...12.8

100 s: (12.4...13.1)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...5.6

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.6

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.80...2.30

2nd speed rpm : 460
 travel mm : 1.60...2.10

3rd speed rpm : 510
 travel mm : 2.00...2.50

4th speed rpm : 630
 travel mm : 2.70...3.20

5th speed rpm : 1150
 travel mm : 7.30...7.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 11.30...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100
Aneroid pressure h: 900
Del.quantity : 126.5...128.5
1000 : (124.0...131.0)
Spread cm³ : 4.00
1000 : (6.50)

RATED SPEED

1st version
Control lever
position degrees: 99...117

Testing:
1st rack travel in: 11.60
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1255...1285
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 62...70
Speed rpm : 350
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 570...630

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.60...12.70
2nd speed rpm : 500
Rack travel in m: 12.60...12.70

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.60...12.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.30
2nd pressure hPa : 405
Rack travel in m: 10.90...11.00
3rd pressure hPa : 535
Rack travel in m: 11.80...12.20

START CUT-OUT

Speed 1/min : 260 (280)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 79.0...83.0
1000 s: (76.5...85.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 165.0...185.0
1000 s: (162.0...188.0)
Rack travel in mm : 15.30...15.70

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

:
Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at 7° after
start of delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 b 8
 Edition : 22.11.91
 Replaces : 28.9.89
 Test oil : ISO-4113

Combination no. : 0 400 836 042

Injection pump
 Pump designation : PES6A100D320/3RS2691
 -2

EP type number : 9 410 230 028

Governor

Governor design. : RQV400...1250AB1235-
 1R

Governor no. : 0 420 213 114

Customer-spec. information

Customer : C.D.C.

Engine : 6 CT

1st version kW : 150.0

Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values

Insp. values in parentheses

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 11.30...11.40

Del.quantity cm3/ : 10.9...11.1

100 s: (10.7...11.3)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.0...5.2

Del.quantity cm3/ : 1.5...1.9

100 s: (1.3...2.2)

Spread cm3 : 0.6

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 8.80...9.20

2nd speed rpm : 1300

travel mm : 7.60...7.80

3rd speed rpm : 400

travel mm : 1.50...1.90

4th speed rpm : 600

travel mm : 3.50...3.90

5th speed rpm : 300

travel mm : 0.50...0.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 700

Del.quantity : 109.0...111.0

1000 : (107.0...113.0)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 10.30
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...16

Testing:

Speed rpm : 250
Minimum rack trave: 7.60
Speed rpm : 400
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 350...500

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.20...11.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 280
Rack travel in m: 10.50...10.70
3rd pressure hPa : 320
Rack travel in m: 10.80...11.20

START CUT-OUT

Speed 1/min : 320 (330)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 85.0...89.0
1000 s: (83.0...91.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.00...5.20
Del.quantity cm³/ : 15.5...19.5
1000 s: (13.0...22.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3914626

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 j 1
 Edition : 29.11.91
 Replaces : 21.8.91
 Test oil : ISO-4113

Combination no. : 0 400 844 096

Injection pump
 Pump designation : PES4A95D410RS2809
 EP type number : 0 410 894 993
 Governor
 Governor design. : RQV300...1400AB1065-
 23L
 Governor no. : 0 420 212 227

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 364

1st version kW : 65.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.90...10.00

Del.quantity cm³/

100 s: (6.3...6.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.5...8.7

Del.quantity cm³/

100 s: (0.5...1.4)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30 ..2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 65.0...66.0

1000 : (63.0...68.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:

1st rack travel in: 8.90
Speed rpm : 1450...1460
2nd rack travel in: 4.00
Speed rpm : 1535...1565
4th rack travel in: 1670
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 73...81

Testing:

Speed rpm : 100
Minimum rack trave: 9.60
Speed rpm : 300
Rack travel in mm : 8.50...8.70

CONSTANT REGULATION

Speed rpm : 550...700

TORQUE CONTROL

Dimension a mm : 1.20
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 9.90...10.00
2nd speed rpm : 400
Rack travel in m: 11.10...11.20
3rd speed rpm : 670
Rack travel in m: 10.60...10.80
4th speed rpm : 1060
Rack travel in m: 10.10...10.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 400
Del.quantity cm³/ : 48.0...51.0
1000 s: (45.5...53.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.90
Speed rpm : 1450...1460

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 14.40...14.80

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet	: MB 4,0 j 2
Edition	: 29.11.91
Replaces	: -
Test oil	: ISO-4113
Combination no.	: 0 400 844 097
Injection pump	
Pump designation	: PES4A95D410RS2809
EP type number	: 0 410 894 993
Governor	
Governor design.	: RQV300...1400AB1065-27L
Governer no.	: 0 420 212 238
Customer-spec. information	
Customer	: MERCEDES-BENZ
Engine	: OM 364
1st version kW	: 65.0
Rated speed	: 2800
TEST BENCH REQUIREMENTS	
Test oil	
inlet temp. °C	: 38...42
Overflow valve	
	: 1 419 992 198
Inlet press., bar	: 1.50
Test nozzle holder assembly	: 0 681 343 009
Opening pressure, bar	: 172...175
Test Lines	: 1 680 750 015
Outside diameter x Wall thickness	
x Length mm	: 6.00X1.50X600
(A) Injection pump setting values	
Insp. values in parentheses	
Set equal delivery quant.	
per values	_____
BEGINNING OF DELIVERY	
Test pressure, bar:	25...27
Prestroke mm	: 3.20...3.30
	: (3.15...3.35)

Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.90...10.00

Del.quantity cm³/ : 6.5...6.6

100 s: (6.3...6.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.5...8.7

Del.quantity cm³/ : 0.8...1.2

100 s: (0.5...1.4)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30 ..2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 65.0...66.0

1000 : (63.0...68.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:

1st rack travel in: 8.90
Speed rpm : 1450...1460
2nd rack travel in: 4.00
Speed rpm : 1535...1565
4th rack travel in: 1670
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 73...81

Testing:

Speed rpm : 100
Minimum rack trave: 9.60
Speed rpm : 300
Rack travel in mm : 8.50...8.70

CONSTANT REGULATION

Speed rpm : 550...700

TORQUE CONTROL

Dimension a mm : 1.20
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 9.90...10.00
2nd speed rpm : 400
Rack travel in m: 11.10...11.20
3rd speed rpm : 670
Rack travel in m: 10.60...10.80
4th speed rpm : 1060
Rack travel in m: 10.10...10.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 400
Del.quantity cm³/ : 48.0...51.0
1000 s: (45.5...53.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.90
Speed rpm : 1450...1460

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 14.40...14.80

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 5,9 e 1
 Edition : 23.10.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 846 595
 Injection pump
 Pump designation : PES6A90D410RS2813
 EP type number : 0 410 896 089
 Governor
 Governor design. : RQV300...1250AB1262-
 Governer no. : 0 420 212 232
 Customer-spec. information
 Customer : IVECO-FIAT

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test Lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.80...10.90

Del.quantity cm³/ : 6.7...6.8

100 s: (6.5...7.0)

Spread cm³ : 0.3

100 s: (0.4)

2nd speed rpm : 325.0

Rack travel in mm : 8.4...8.6

Del.quantity cm³/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm³ : 0.2

100 s: (0.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.40...1.90

2nd speed rpm : 430

travel mm : 2.80...3.30

3rd speed rpm : 530

travel mm : 3.40...3.90

4th speed rpm : 880

travel mm : 5.50...6.00

5th speed rpm : 1300

travel mm : 8.30...8.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1280

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity 1000 : 67.0...68.0

: (65.0...70.0)

Spread cm³ : 3.00

1000 : (4.50)

RATED SPEED

1st version

Control lever
position degrees: 111...119

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

Testing:

1st rack travel in: 9.80
Speed rpm : 1330...1340
2nd rack travel in: 4.00
Speed rpm : 1415...1445
4th rack travel in: 1510
Speed rpm : 0.00...1.00

On activation of the starting solenoid,
the start position must be reached.

LOW IDLE 1

Control lever
position degrees: 69...77

Testing:

Speed rpm : 225
Minimum rack trave: 10.40
Speed rpm : 325
Rack travel in mm : 8.40...8.60

TORQUE CONTROL

Dimension a mm : 0.90
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 10.80...10.90
2nd speed rpm : 250
Rack travel in m: 11.70...11.80
3rd speed rpm : 410
Rack travel in m: 11.40...11.60
4th speed rpm : 620
Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 63.5...65.5
1000 s: (61.0...68.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1330...1340

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 95.0...105.0
1000 s: (92.0...108.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 5,9 e
 Edition : 29.11.91
 Replaces : 8.10.91
 Test oil : ISO-4113

Combination no. : 0 400 846 597

Injection pump

Pump designation : PES6A90D410RS2813
 EP type number : 0 410 896 089
 Governor
 Governor design. : RQV300...1250AB1264L
 Governer no. : 0 420 212 233

Customer-spec. information

Customer : IVECO-FIAT

Engine : 8065.25.000

1st version kW : 145.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 7.6...7.7

100 s: (7.4...7.9)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 8.2...8.4

Del.quantity cm³/ : 0.6...1.0

100 s: (0.4...1.2)

Spread cm³ : 0.2

100 s: (0.4)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.60...1.10

2nd speed rpm : 445

travel mm : 2.20...2.70

3rd speed rpm : 540

travel mm : 2.80...3.30

4th speed rpm : 897

travel mm : 5.00...5.50

5th speed rpm : 1324

travel mm : 8.00...8.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1495

Rack travel in mm : 9.60...12.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 700

Del.quantity : 76.0...77.0

1000 : (74.0...79.0)

Spread cm³ : 3.00
 1000 : (5.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:

1st rack travel in: 10.90
Speed rpm : 1310...1320
2nd rack travel in: 4.00
Speed rpm : 1415...1445
4th rack travel in: 1510
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 68...76

Testing:

Speed rpm : 300
Minimum rack trave: 19.50
Speed rpm : 300
Rack travel in mm : 8.20...8.40
Rack travel in mm : 2.00
Speed rpm : 690...750

TORQUE CONTROL

Dimension a mm : 2.20
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 10.90...11.00
2nd speed rpm : 500
Rack travel in m: 13.10...13.20
3rd speed rpm : 700
Rack travel in m: 12.70...12.90
4th speed rpm : 915
Rack travel in m: 12.10...12.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.10...13.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.40...11.50
2nd pressure hPa : 315
Rack travel in m: 12.70...12.80
3rd pressure hPa : 280
Rack travel in m: 12.10...12.30

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 700
Del.quantity cm³/ : 75.5...77.5
1000 s: (73.0...80.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 50.0...51.0
1000 s: (48.0...53.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1310...1320

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)
Rack travel in mm : 19.50...21.00

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 5,9 f
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 846 600

Injection pump
 Pump designation : PES6A90D410RS2818
 EP type number : 0 410 896 091
 Governor
 Governor design. : RQV300...1500AB1266L
 Governer no. : 0 420 212 236

Customer-spec. information
 Customer : IVECO-FIAT
 Engine : 8060.25.670
 1st version kW : 175.0
 Rated speed : 3000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 922 198

Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175

Test lines : 1 680 750 014
 Outside diameter x Wall thickness : 6.00x2.00x600
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27
 Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1500

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 7.9...8.0

100 s: (7.7...8.2)

Spread cm³ : 0.3

100 s: (0.4)

2nd speed rpm : 300.0

Rack travel in mm : 9.4...9.6

Del.quantity cm³/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm³ : 0.2

100 s: (0.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 250
	travel mm	: 0.90...1.40
2nd speed	rpm	: 435
	travel mm	: 2.00...2.50
3rd speed	rpm	: 485
	travel mm	: 2.30...2.80
4th speed	rpm	: 640
	travel mm	: 3.20...3.70
5th speed	rpm	: 1610
	travel mm	: 8.10...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1740

Rack travel in mm : 10.00...12.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1500
Del.quantity		: 79.0...80.0
	1000	: (77.0...82.0)
Spread	cm ³	: 3.00
	1000	: (4.50)

RATED SPEED

1st version

Control lever

position degrees: 117...125

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

Testing:

1st rack travel in: 11.30
Speed rpm : 1590...1600
2nd rack travel in: 4.00
Speed rpm : 1740...1770
4th rack travel in: 1870
Speed rpm : 0.00...1.00

On activation of the starting solenoid,
the start position must be reached.

LOW IDLE 1

Control lever

position degrees: 72...80

Testing:

Speed rpm : 200
Minimum rack trave: 10.60
Speed rpm : 300
Rack travel in mm : 9.40...9.60

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 1500
Rack travel in m: 12.30...12.40
2nd speed rpm : 500
Rack travel in m: 12.30...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1000
Del.quantity cm³/ : 74.0...76.0
1000 s: (71.5...78.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1590...1600

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...155.0
1000 s: (142.0...158.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

1st version
Control lever
position degrees: 44...52

Testing:

1st rack travel in: 11.30
Speed rpm : 1390...1420
2nd rack travel in: 4.00
Speed rpm : 1525...1535
4th rack travel in: 1625
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 350...500

TORQUE CONTROL

Dimension a mm : 0.90
Torque control curve - 1st version
1st speed rpm : 1350
Rack travel in m: 12.30...12.40
2nd speed rpm : 850
Rack travel in m: 13.20...13.30
3rd speed rpm : 1200
Rack travel in m: 12.70...12.90

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.20...13.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.10...9.30
2nd pressure hPa : 265
Rack travel in m: 10.30...10.40
3rd pressure hPa : 560
Rack travel in m: 12.10...12.50

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 850
Del.quantity cm³/ : 99.0...103.0
1000 s: (97.0...105.0)
Spread cm³ : 5.00
1000 s: (7.00)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 60.5...64.5
1000 s: (58.5...66.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1390...1420

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 17.0...21.0
1000 s: (14.5...23.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: NAVISTAR #1818798C91

Limit shutoff stop screw to 1.0 mm.

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 y 2
 Edition : 22.11.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 846 604

Injection pump
 Pump designation : PES6A95D320RS2779
 EP type number : 0 410 896 903
 Governor
 Governor design. : RQV350...1350AB1248-
 2R
 Governer no. : 0 420 213 126

Customer-spec. information

Customer : NAVISTAR

Engine : DT 360

1st version kW : 127.0
 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 110

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.65...2.75
 : (2.60...2.80)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1350

Rack travel in mm : 11.90...12.00

Del.quantity cm³/

100 s: (7.7...8.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/

100 s: (1.4...2.3)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 7.30...7.50

2nd speed rpm : 1460

travel mm : 8.10...8.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1350

Aneroid pressure h: 900

Del.quantity : 79.5...81.5

1000 : (77.5...83.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 44...52

Testing:
1st rack travel in: 10.90
Speed rpm : 1390...1420
2nd rack travel in: 4.00
Speed rpm : 1525...1535
4th rack travel in: 1625
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 11...19

Testing:
Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 350...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.90...12.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.00
2nd pressure hPa : 210
Rack travel in m: 10.80...10.90
3rd pressure hPa : 435
Rack travel in m: 12.10...12.50

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 71.0...75.0
1000 s: (69.0...77.0)

BREAKAWAY

B28

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1390...1420

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 16.20...17.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 17.0...21.0
1000 s: (14.5...23.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks: : NAVISTAR #1816726C92

Limit shutoff stop screw to 1.0 mm.

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 1 g 31
 Edition : 29.11.91
 Replaces : 22.5.87
 Test oil : ISO-4113

 Combination no. : 0 400 864 069

 Injection pump
 Pump designation : PES4A85D410/3RS2732
 EP type number : 0 410 884 947
 Governor
 Governor design. : RSV325...1175A8C2163
 -3L
 Governer no. : 0 420 232 474

 Customer-spec. information
 Customer : KHD

 Engine : F4L913

 1st version kW : 55.0
 Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 419 992 198

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test lines : 1 680 750 014

 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1-3-4-2

Phasing : 0-90-180-270
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed	rpm	: 1175
Rack travel in mm		: 9.80...9.90
Del.quantity cm ³ /		: 6.7...6.8
	100 s:	(6.5...7.0)
Spread	cm ³	: 0.3
	100 s:	(0.4)
2nd speed	rpm	: 325.0
Rack travel in mm		: 6.6...6.8
Del.quantity cm ³ /		: 1.0...1.6
	100 s:	(0.8...1.8)
Spread	cm ³	: 0.2
	100 s:	(0.4)

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1175
 Del.quantity : 67.0...68.0
 1000 : (65.0...70.0)
 Spread cm³ : 3.00
 1000 : (4.50)

RATED SPEED

1st version
 Control lever
 position degrees: 103...111

Testing:
 1st rack travel in: 8.80
 Speed rpm : 1215...1225
 2nd rack travel in: 4.00
 Speed rpm : 1235...1265
 3rd rack travel in: 4.00

Speed rpm : 1255...1285
4th rack travel in: 1420
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 65...73
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 5.6

Testing:
Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 325
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 460...520

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1175
Rack travel in m: 9.80...9.90
2nd speed rpm : 500
Rack travel in m: 10.30...10.40
3rd speed rpm : 800
Rack travel in m: 10.20...10.30

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm³/ : 58.0...60.0
1000 s: (55.5...62.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.80
Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 17.10...17.30

Remarks:
: TKS2.80

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 k 1
 Edition : 29.11.91
 Replaces : 3.6.91
 Test oil : ISO-4113

 Combination no. : 0 400 864 088

 Injection pump
 Pump designation : PES4A85D410/3RS2799
 EP type number : 0 410 884 944
 Governor
 Governor design. : RSV325...1250A2C2253
 -2L
 Governer no. : 0 420 232 556

 Customer-spec. information
 Customer : KHD

 Engine : BF4L913

 1st version kW : 78.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 419 992 198

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test lines : 1 680 750 014

 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.45...2.55
 : (2.40...2.60)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 11.70...11.80

Del.quantity cm³/ : 8.4...8.5

100 s: (8.2...8.7)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 7.5...7.7

Del.quantity cm³/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1000

Del.quantity : 84.0...85.0

1000 : (82.0...87.0)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 88...96

Testing:

1st rack travel in: 10.70

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1320...1350

4th rack travel in: 1480
Speed rpm : 0.30...1.40

Del.quantity cm³/ : 58.0...60.0
1000 s: (56.0...62.0)

LOW IDLE 1

Control lever
position degrees: 58...66
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.0

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.70
Speed rpm : 1290...1300

Testing:
Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 325
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 340...400

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 17.60...18.00

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

Remarks:

:

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 11.70...11.80
2nd speed rpm : 500
Rack travel in m: 12.00...12.10
4th speed rpm : 800
Rack travel in m: 11.90...12.10

APPLICATION

Aneroid/Altitude
Compensator Test

Compressor

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.00...12.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.90...11.00
2nd pressure hPa : 300
Rack travel in m: 11.80...11.90
3rd pressure hPa : 230
Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 520
Speed rpm : 800
Del.quantity cm³/ : 80.0...82.0
1000 s: (77.5...84.5)
Aneroid pressure h: -
Speed rpm : 500

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 k 3
 Edition : 22.11.91
 Replaces : 18.9.91
 Test oil : ISO-4113

Combination no. : 0 400 866 141

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1250AOC2216
 -3R
 Governer no. : 0 420 233 238

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3 Ltr
 1st version kW : 160.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 101

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.00...12.10

Del.quantity cm³/ : 11.8...12.0

100 s: (11.6...12.2)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 118.5...120.5

1000 : (116.5...122.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 52...60

Testing:

1st rack travel in: 11.00
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1355...1385
3rd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1450
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 26...34

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 4.90...5.10

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.00...12.10
2nd speed rpm : 750
Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 125.0...129.0
1000 s: (123.0...131.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.00
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3915979
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 L 8
 Edition : 22.11.91
 Replaces : 8.7.91
 Test oil : ISO-4113

Combination no. : 0 400 866 150

Injection pump
 Pump designation : PES6A100D320/3RS2763
 EP type number : 0 410 806 006
 Governor
 Governor design. : RSV400...1100AOC2190
 -45R
 Governor no. : 0 420 233 253

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT 8.3

1st version kW : 134.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.90...11.00

Del.quantity cm³/

100 s: (10.4...11.0)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 375.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/

100 s: (1.8...2.7)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 106.5...108.5

1000 : (104.5...110.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 51...59

Testing:

1st rack travel in: 9.90	Spread cm ³ : 6.00
Speed rpm : 1140...1150	1000 s: (8.00)
2nd rack travel in: 4.00	
Speed rpm : 1230...1240	
3rd rack travel in: 4.00	Remarks:
Speed rpm : 1230...1260	: C.D.C. # 3915974
4th rack travel in: 1300	
Speed rpm : 0.30...1.40	Adjust stop lever to 0.5...1.0 mm before stop.
LOW IDLE 1	Start-of-delivery mark 11° cam angle after start of delivery cyl. 1
Control lever position degrees: 31...39	
Setting point w/out bumper spring	
Speed rpm : 375	Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.
Rack travel in mm : 5.5	
Testing:	
Speed rpm : 100	
Minimum rack trave: 19.00	
Speed rpm : 375	
Rack travel in mm : 5.90...6.10	
TORQUE CONTROL	
Torque control curve - 1st version	
1st speed rpm : 1100	
Rack travel in m: 10.90...11.00	
2nd speed rpm : 750	
Rack travel in m: 11.90...12.10	
FUEL DELIVERY CHARACTERISTICS	
1st version	
Speed rpm : 750	
Del.quantity cm ³ / : 119.5...123.5	
1000 s: (117.5...125.5)	
BREAKAWAY	
1st version	
1mm rack travel less than	
full load rack tr: 9.90	
Speed rpm : 1140...1150	
STARTING FUEL DELIVERY	
Speed rpm : 100	
Del.quantity cm ³ / : 150.0...170.0	
1000 s: (145.0...175.0)	
Rack travel in mm : 19.00...21.00	
LOW IDLE	
Speed rpm : 375	
Rack travel in mm : 5.90...6.10	
Del.quantity cm ³ / : 21.0...25.0	
1000 s: (18.5...27.5)	

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 o
 Edition : 22.11.91
 Replaces : 21.8.91
 Test oil : ISO-4113

Combination no. : 0 400 866 151

Injection pump
 Pump designation : PES6A100D320/3RS2691
 -4

EP type number : 9 410 230 030

Governor

Governor design. : RSV450...1100A0C2238

Governer no. : 0 420 233 254

Customer-spec. information

Customer : C.D.C.

Engine : 6CT830

1st version kW : 151.0

Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.10...12.20

Del.quantity cm³ : 11.9...12.1

100 s: (11.7...12.3)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 119.0...121.0

1000 : (117.0...123.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 11.10
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1205
3rd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 450
Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.10...12.20
2nd speed rpm : 750
Rack travel in m: 13.20...13.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.20...13.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.40...10.60
2nd pressure hPa : 385
Rack travel in m: 11.40...11.50
3rd pressure hPa : 560
Rack travel in m: 12.60...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm3/ : 136.5...140.5
1000 s: (134.5...142.5)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/ : 80.0...82.0
1000 s: (78.0...84.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.40...5.60
Del.quantity cm3/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3915996

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 q
 Edition : 22.11.91
 Replaces : 1.2.90
 Test oil : ISO-4113

Combination no. : 0 400 866 154

Injection pump
 Pump designation : PES6A100D320/3RS2691
 -4

EP type number : 9 410 230 030
 Governor
 Governor design. : RSV450...1100A0C2241
 R
 Governor no. : 0 420 233 256

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830

1st version kW : 134.2
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del.quantity cm³/ : 10.3...10.5

100 s: (10.1...10.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 1.6...2.0

100 s: (1.4...2.3)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 103.5...105.5

1000 : (101.5...107.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 10.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1210...1240
3rd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 29...37
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 750
Rack travel in m: 12.00...12.20

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.00...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.70...10.80
2nd pressure hPa : 305
Rack travel in m: 11.10...11.20
3rd pressure hPa : 425
Rack travel in m: 11.50...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm³/ : 112.5...116.5
1000 s: (110.5...118.5)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 80.0...82.0
1000 s: (78.0...84.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 16.5...20.5
1000 s: (14.0...23.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: C.D.C. # 3915995

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a94
 Edition : 22.11.91
 Replaces : 8.7.91
 Test oil : ISO-4113
 Combination no. : 0 400 866 172
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1250A0C2190
 -55R
 Governer no. : 0 420 233 286
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 CTA 8.3
 1st version kW : 131.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250
 Rack travel in mm : 10.80...10.90
 Del.quantity cm³/ : 9.9...10.1
 100 s: (9.7...10.3)

Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.2...5.4
 Del.quantity cm³/ : 1.2...1.6
 100 s: (1.0...1.9)

Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Del.quantity : 99.5...101.5
 1000 : (97.5...103.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 51...59

Testing:

1st rack travel in: 9.80
Speed rpm : 1325...1335
2nd rack travel in: 4.00
Speed rpm : 1400...1410
3rd rack travel in: 4.00
Speed rpm : 1400...1430
4th rack travel in: 1500
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.8

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.20...5.40

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 1325...1335

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 12.5...16.5
1000 s: (10.0...19.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3920811

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : EIC 2,9 c 5
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 873 036

Injection pump
 Pump designation : PES3A90D320RS2626
 EP type number : 0 410 893 002
 Governor
 Governor design. : RSV300...975A1C2171-
 5R
 Governer no. : 0 420 233 185

Customer-spec. information
Customer : EICHER

Engine : EDL3-2

1st version kW : 40.0
Rated speed : 1950

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
: (2.15...2.35)

Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 2

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 975

Rack travel in mm : 11.30...11.40

Del. quantity cm³/ : 7.7...7.8

100 s: (7.5...8.0)

Spread cm³ : 0.2

100 s: (0.5)

2nd speed rpm : 300.0

Rack travel in mm : 7.9...8.1

Del.quantity cm³/ : 1.5...2.5

100 s: (1.3...2.7)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 975

Del.quantity : 77.0...78.0

1000 : (75.0...80.0)

Spread cm³ : 2.50

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Testing:

1st rack travel in: 10.40

Speed rpm : 1015...1025

2nd rack travel in: 4.00

Speed rpm : 1045...1075
3rd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1235
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.5

Testing:
Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 300
Rack travel in mm : 7.90...8.10
Rack travel in mm : 2.00
Speed rpm : 400...460

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm³/ : 69.0...71.0
1000 s: (66.5...73.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.40
Speed rpm : 1015...1025

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 133.0...143.0
1000 s: (130.0...146.0)
Rack travel in mm : 19.50...21.00

Remarks:
:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : LIE 5,6 a
 Edition : 29.11.91
 Replaces : 1.9.89
 Test oil : ISO-4113

Combination no. : 0 400 874 238

Injection pump
 Pump designation : PES4A95D410RS2685
 EP type number : 0 410 894 996
 Governor
 Governor design. : RSV/0...1000A1C2187

Governor no. : 0 420 232 387

Customer-spec. information
 Customer : LIEBHERR

Engine : D904 NA

1st version kW : 90.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80
 : (2.65...2.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 975

Rack travel in mm : 12.20...12.30

Del.quantity cm³/ : 11.4...11.6

100 s: (11.2...11.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 415.0

Rack travel in mm : 6.6...6.8
 Del.quantity cm³/ : 1.7...2.1

100 s: (1.4...2.3)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 975
 Del.quantity : 114.0...116.0
 1000 : (112.0...118.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version

Control lever
 position degrees: 90...98

Testing:

1st rack travel in: 11.20
Speed rpm : 1015...1025
2nd rack travel in: 4.00
Speed rpm : 1030...1060
3rd rack travel in: 4.00
Speed rpm : 1070...1090
4th rack travel in: 1230
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 65...73
Setting point w/out bumper spring
Speed rpm : 415
Rack travel in mm : 6.2

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 415
Rack travel in mm : 6.60...6.80
Rack travel in mm : 2.00
Speed rpm : 535...595

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 975
Rack travel in m: 12.20...12.30
2nd speed rpm : 500
Rack travel in m: 12.20...12.40

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1015...1025

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 415
Rack travel in mm : 6.60...6.80
Del.quantity cm³/ : 17.0...21.0
1000 s: (14.5...23.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 5,7 m 13
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 876 109

Injection pump
 Pump designation : PES6A80D410RS2085X
 EP type number : 0 410 886 045
 Governor
 Governor design. : RSV350...1300A2C1005
 Governor no. : 0 420 232 405

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM352

1st version kW : 62.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.00

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 8.00...8.10

Del.quantity cm³/ : 3.9...4.0

100 s: (3.7...4.1)

Spread cm³ : 0.2

100 s: (0.3)

2nd speed rpm : 350.0

Rack travel in mm : 6.6...7.2

Del.quantity cm³/ : 1.0...1.2

100 s: (0.8...1.3)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del.quantity : 39.0...40.0

1000 : (37.5...41.5)

Spread cm³ : 2.00

1000 : (3.50)

RATED SPEED

1st version

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 7.00

Speed rpm : 1340...1345

2nd rack travel in: 4.00

Speed rpm : 1371...1384

3rd rack travel in: 4.00

Speed rpm : 1405...1435

4th rack travel in: 1575
Speed rpm : 0.30...1.70

Spread cm³ : 2.00
1000 s: (3.50)

LOW IDLE 1
Control lever
position degrees: -3
Setting point w/out bumper spring
Speed rpm : 350

Remarks:

:

Testing:
Speed rpm : 100
Minimum rack trave: 17.50
Speed rpm : 350
Rack travel in mm : 6.80...7.00
Rack travel in mm : 2.00
Speed rpm : 590...650

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 8.00...8.10
2nd speed rpm : 500
Rack travel in m: 9.30...9.40
3rd speed rpm : 700
Rack travel in m: 9.20...9.40
4th speed rpm : 950
Rack travel in m: 8.30...8.60

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 37.5...39.5
1000 s: (35.5...41.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 7.00
Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 14.50...14.90

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.60...7.20
Del.quantity cm³/ : 10.0...12.0
1000 s: (8.5...13.5)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 q
 Edition : 22.11.91
 Replaces : 06.07.90
 Test oil : ISO-4113

Combination no. : 0 402 036 734

Injection pump
 Pump designation : PES6P120A720/3LS3247
 EP type number : 0 412 026 735
 Governor
 Governor design. : RQ300/1100PA813-12
 Governer no. : 0 421 801 518

Customer-spec. information

Customer : MAN

Engine : D2866LXF/A00

1st version kW : 273.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 14.50...15.50
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.90...6.10
 & maximum rack tra: 14.5...15.5
 Difference ° CS : 2.00...4.00

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 15.00...15.10

Del.quantity cm³/ : 24.2...24.4

100 s: (23.9...24.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.8...5.2

Del.quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 242.0...244.0

1000 : (239.0...247.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.70
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 13.00
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.0

Testing:

Speed rpm : 200
Minimum rack trave: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 365...405

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 14.70...14.80
2nd speed rpm : 700
Rack travel in m: 15.00...15.10
3rd speed rpm : 900
Rack travel in m: 14.80...15.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 15.00...15.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 11.70...11.90
2nd pressure hPa : 110
Rack travel in m: 12.00...12.10
3rd pressure hPa : 470
Rack travel in m: 14.00...14.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1100
Del.quantity cm³/ 1000 s: 230.0...236.0
1000 s: (227.0...239.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 134.0...136.0
1000 s: (131.0...139.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.70
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 210.0...230.0
1000 s: (206.0...234.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.80...5.20
Del.quantity cm³/ 1000 s: 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7889

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 8,1 a 1
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 046 345
 Injection pump
 Pump designation : PES6P110A720RS530
 EP type number : 0 412 016 075
 Governor
 Governor design. : RQV300...1000PA1016-1
 Governer no. : 0 421 813 966
 Customer-spec. information
 Customer : IVECO-UNIC
 Engine : 8365.25.541

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed	rpm	: 1000
Rack travel in mm		: 9.30...9.40
Del.quantity cm ³ /		: 10.4...10.6
	100 s:	(10.1...10.8)
Spread	cm ³	: 0.4
	100 s:	(0.7)
2nd speed	rpm	: 450.0
Rack travel in mm		: 5.2...5.6
Del.quantity cm ³ /		: 1.3...1.8
	100 s:	(1.0...2.0)
Spread	cm ³	: 0.4
	100 s:	(0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1075
travel mm		: 8.60...8.80
2nd speed	rpm	: 300
travel mm		: 1.00...1.40
3rd speed	rpm	: 450
travel mm		: 3.30...3.90
4th speed	rpm	: 700
travel mm		: 5.40...5.80
5th speed	rpm	: 1300
travel mm		: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1170
 Rack travel in mm : 7.60...10.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 700
 Del.quantity : 104.0...106.0
 : 1000 : (101.5...108.5)
 Spread cm³ : 4.00
 : 1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 8.30
Speed rpm : 1070...1080
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 79...87

Testing:

Speed rpm : 300
Minimum rack travel: 8.50
Speed rpm : 450
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 290...410

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 9.30...9.40

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 8.90...9.10

2nd pressure hPa : 295

Rack travel in m: 9.10...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 700
Del.quantity cm³/ : 101.0...105.0
1000 s: (98.0...108.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 93.0...95.0
1000 s: (90.5...97.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30
Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 195.0...225.0
1000 s: (191.0...229.0)

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 8,1 a 1
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 046 346
 Injection pump
 Pump designation : PES6P110A720RS530
 EP type number : 0 412 016 075
 Governor
 Governor design. : RQV450...1000PA1016-2
 Governer no. : 0 421 813 967
 Customer-spec. information
 Customer : IVECO-UNIC
 Engine : 8365.25.532

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed	rpm	: 700
Rack travel in mm		: 9.80...9.90
Del.quantity cm ³ /		: 11.6...11.8
100 s:		(11.4...12.1)
Spread	cm ³	: 0.4
100 s:		(0.7)
2nd speed	rpm	: 450.0
Rack travel in mm		: 5.4...5.8
Del.quantity cm ³ /		: 1.7...2.2
100 s:		(1.4...2.4)
Spread	cm ³	: 0.4
100 s:		(0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1095
travel mm		: 6.70...6.90
2nd speed	rpm	: 450
travel mm		: 0.70...1.10
3rd speed	rpm	: 700
travel mm		: 3.30...3.90
4th speed	rpm	: 850
travel mm		: 4.80...5.20
5th speed	rpm	: 1650
travel mm		: 11.00...12.00

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1430
 Rack travel in mm : 8.50...11.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version		
Speed	rpm	: 700
Aneroid pressure h:		700
Del.quantity		: 116.5...118.5
1000		: (114.0...121.0)
Spread	cm ³	: 4.00
1000		: (7.50)

RATED SPEED

1st version

Control lever
position degrees: 96...106

Testing:

1st rack travel in: 8.80
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 66...74

Testing:

Speed rpm : 375
Minimum rack trave: 7.70
Speed rpm : 450
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 510...570

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 9.80...9.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.10...9.30

2nd pressure hPa : 400

Rack travel in m: 9.60...9.70

3rd pressure hPa : 380

Rack travel in m: 9.30...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 1050
Del.quantity cm³/ : 113.0...117.0
1000 s: (110.0...120.0)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 97.0...99.0
1000 s: (94.5...101.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.80
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 195.0...225.0
1000 s: (191.0...229.0)

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.40...5.80
Del.quantity cm³/ : 17.0...22.0
1000 s: (14.5...24.5)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 8,1 a 3
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 046 347

Injection pump
 Pump designation : PES6P110A720RS530
 EP type number : 0 412 016 075
 Governor
 Governor design. : RQV450...1075PA1016-3
 Governor no. : 0 421 813 968

Customer-spec. information

Customer : IVECO-UNIC

Engine : 8365.25.584

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 10.20...10.30

Del.quantity cm³/ : 12.2...12.4

100 s: (11.9...12.6)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 450.0

Rack travel in mm : 5.4...5.8

Del.quantity cm³/ : 1.7...2.2

100 s: (1.4...2.4)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1135
travel mm		: 7.00...7.20
2nd speed	rpm	: 450
travel mm		: 0.70...1.10
3rd speed	rpm	: 700
travel mm		: 3.30...3.90
4th speed	rpm	: 950
travel mm		: 5.60...6.00
5th speed	rpm	: 1650
travel mm		: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1430

Rack travel in mm : 8.50...11.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Aneroid pressure h: 700

Del.quantity : 122.0...124.0

1000 : (119.5...126.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 95...103

Testing:

1st rack travel in: 9.20
Speed rpm : 1130...1140
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 67...75

Testing:

Speed rpm : 350
Minimum rack travel: 8.60
Speed rpm : 450
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 490...550

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 10.20...10.30

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.00...9.20

2nd pressure hPa : 480

Rack travel in m: 9.80...9.90

3rd pressure hPa : 440

Rack travel in m: 9.30...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 700

Del.quantity cm³/ : 125.0...129.0
1000 s: (122.0...132.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 93.0...95.0
1000 s: (90.5...97.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 195.0...225.0
1000 s: (191.0...229.0)

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.40...5.80
Del.quantity cm³/ : 17.0...22.0
1000 s: (14.5...24.5)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 8,3 a 4
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 046 348
 Injection pump
 Pump designation : PES6P110A720RS530
 EP type number : 0 412 016 075
 Governor
 Governor design. : RQV450...1100PA1016-4
 Governor no. : 0 421 813 969
 Customer-spec. information
 Customer : IVECO-UNIC
 Engine : 8365.25.533

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.10...11.20

Del.quantity cm³/ : 13.8...14.0

100 s: (13.5...14.2)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 450.0

Rack travel in mm : 5.9...6.3

Del.quantity cm³/ : 1.7...2.2

100 s: (1.4...2.4)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1145

travel mm : 6.80...7.00

2nd speed rpm : 450

travel mm : 1.20...1.60

3rd speed rpm : 700

travel mm : 3.30...3.90

4th speed rpm : 950

travel mm : 5.50...5.90

5th speed rpm : 1650

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1460

Rack travel in mm : 8.80...11.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 700

Del.quantity : 138.0...140.0

1000 : (135.5...142.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 96...104

Testing:

1st rack travel in: 10.10
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1260...1290
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 66...74

Testing:

Speed rpm : 325
Minimum rack trave: 9.60
Speed rpm : 450
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION

Speed rpm : 470...550

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.10...10.30

2nd pressure hPa : 480

Rack travel in m: 10.80...10.90

3rd pressure hPa : 440

Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 1100

Del.quantity cm3/ : 133.0...137.0
1000 s: (130.0...140.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 111.0...113.0
1000 s: (108.5...115.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 185.0...215.0
1000 s: (181.0...219.0)

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.90...6.30
Del.quantity cm3/ : 17.0...22.0
1000 s: (14.5...24.5)
Spread cm3 : 4.50
1000 s: (7.50)

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 8,1 a
 Edition : 20.09.91
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 402 046 349

 Injection pump
 Pump designation : PES6P110A720RS530
 EP type number : 0 412 016 075
 Governor
 Governor design. : RQV300...1000PA1016-5
 Governor no. : 0 421 813 970

 Customer-spec. information
 Customer : IVECO-UNIC

 Engine : 8365.25.540

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test lines : 1 680 750 015

 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed	rpm	: 1000
Rack travel in mm		: 10.60...10.70
Del.quantity cm ³ /		: 11.0...11.2
	100 s:	(10.7...11.4)
Spread	cm ³	: 0.4
	100 s:	(0.7)
2nd speed	rpm	: 300.0
Rack travel in mm		: 7.0...7.4
Del.quantity cm ³ /		: 1.8...2.3
	100 s:	(1.5...2.5)
Spread	cm ³	: 0.4
	100 s:	(0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1075
travel mm		: 8.20...8.40
2nd speed	rpm	: 300
travel mm		: 1.00...1.40
3rd speed	rpm	: 450
travel mm		: 3.30...3.90
4th speed	rpm	: 700
travel mm		: 5.30...5.70
5th speed	rpm	: 1400
travel mm		: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1210
 Rack travel in mm : 8.30...10.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1000
Aneroid pressure h:		700
Del.quantity		: 110.0...112.0
	1000	: (107.5...114.5)
Spread	cm ³	: 4.00
	1000	: (7.50)

RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 9.60

Speed rpm : 1070...1080

2nd rack travel in: 4.00

Speed rpm : 1140...1170

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 66...74

Testing:

Speed rpm : 200

Minimum rack trave: 10.00

Speed rpm : 300

Rack travel in mm : 7.10...7.30

CONSTANT REGULATION

Speed rpm : 310...430

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 700

Rack travel mm : 10.60...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.90...10.10

2nd pressure hPa : 300

Rack travel in m: 10.40...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 600

Del.quantity cm³/ : 110.0...114.0

1000 s: (107.0...117.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 93.0...95.0

1000 s: (90.5...97.5)

1st version

1mm rack travel less than

full load rack tr: 9.60

Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 160.0...180.0

1000 s: (156.0...184.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 7.00...7.40

Del.quantity cm³/ : 18.0...23.0

1000 s: (15.5...25.5)

Spread cm³ : 4.50

1000 s: (7.50)

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 8,1 b
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 046 350
 Injection pump
 Pump designation : PES6P110A720RS531
 EP type number : 0 412 016 076
 Governor
 Governor design. : RQV300...1100PA1016-7
 Governer no. : 0 421 813 972
 Customer-spec. information
 Customer : IVECO-UNIC
 Engine : 8361.25.510

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed	rpm	: 1100
Rack travel in mm		: 10.30...10.40
Del.quantity cm ³ /		: 12.0...12.2
100 s:		(11.7...12.4)
Spread	cm ³	: 0.4
100 s:		(0.7)
2nd speed	rpm	: 300.0
Rack travel in mm		: 6.0...6.4
Del.quantity cm ³ /		: 1.3...1.8
100 s:		(1.0...2.0)
Spread	cm ³	: 0.4
100 s:		(0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1145
travel mm		: 8.30...8.50
2nd speed	rpm	: 300
travel mm		: 0.80...1.20
3rd speed	rpm	: 500
travel mm		: 2.50...3.10
4th speed	rpm	: 750
travel mm		: 4.50...4.90
5th speed	rpm	: 1350
travel mm		: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1240
 Rack travel in mm : 8.00...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1100
Aneroid pressure h:		700
Del.quantity		: 120.0...122.0
1000		: (117.5...124.5)
Spread	cm ³	: 4.00
1000		: (7.50)

RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 9.30

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1205...1235

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 63...71

Testing:

Speed rpm : 100

Minimum rack trave: 7.70

Speed rpm : 300

Rack travel in mm : 6.10...6.30

CONSTANT REGULATION

Speed rpm : 370...490

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 700

Rack travel mm : 10.30...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.10...9.20

2nd pressure hPa : 465

Rack travel in m: 9.90...10.00

3rd pressure hPa : 430

Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 1100

Del.quantity cm3/ : 96.0...98.0

1000 s: (93.5...100.5)

1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 215.0...245.0
1000 s: (211.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.40
Del.quantity cm3/ : 13.0...18.0
1000 s: (10.5...20.5)
Spread cm3 : 4.50
1000 s: (7.50)

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BREAKAWAY

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ROL 12,2 i1
 Edition : 20.09.91
 Replaces : 26.7.91
 Test oil : ISO-4113

Combination no. : 0 402 046 779

Injection pump

Pump designation : PES6P120A320RS3170-1
 EP type number : 0 412 026 726
 Governor
 Governor design. : RQ750PA826-1
 Governer no. : 0 421 801 366

Customer-spec. information

Customer : PERKINS

Engine : EAGLE LE

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 2- 6- 3- 5

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.10...13.20

Del.quantity cm³/

100 s: (20.9...21.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 212.0...214.0

1000 : (209.0...217.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 26...34

Testing:

1st rack travel in: 12.10

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 776...791

4th rack travel in: 900

Speed rpm : 0.00...1.00

START CUT-OUT

Speed 1/min : 690 (0)

BREAKAWAY

?st version
1mm rack travel less than

full load rack tr: 12.10
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...220.0
1000 s: (176.0...224.0)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 7,7 a
 Edition : 08.10.91
 Replaces : 23.8.91
 Test oil : ISO-4113

Combination no. : 0 402 046 815

Injection pump
 Pump designation : PES6P120A720RS3249
 EP type number : 0 412 026 737
 Governor
 Governor design. : RQV300...1100PA954K
 Governor no. : 0 421 815 243

Customer-spec. information
 Customer : IVECO-UNIC

Engine : 8360.46.417

1st version kW : 196.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 20.5...20.7

100 s: (20.2...21.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 4.6...5.0
 Del.quantity cm³/ : 2.2...2.8
 100 s: (1.9...3.1)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1160
 travel mm : 10.60...10.80
 2nd speed rpm : 300
 travel mm : 1.00...1.40
 3rd speed rpm : 850
 travel mm : 6.60...7.00
 4th speed rpm : 1350
 travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1150
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1500
 Del.quantity : 205.0...207.0
 1000 : (202.0...210.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:
1st rack travel in: 11.30
Speed rpm : 1170...1180
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 13...21

Testing:
Speed rpm : 100
Minimum rack trave: 5.30
Speed rpm : 300
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 340...400

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.30...12.50
2nd speed rpm : 850
Rack travel in m: 11.60...11.90
3rd speed rpm : 700
Rack travel in m: 11.00...11.30
4th speed rpm : 300
Rack travel in m: 8.50...8.80

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1100
Pressure hPa : 1500
Rack travel mm : 12.30...12.40

Measurement
Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 8.10...8.30
2nd pressure hPa : 840
Rack travel in m: 12.10...12.20
3rd pressure hPa : 410
Rack travel in m: 9.90...10.30

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 700
Del.quantity cm³/ 1000 s: 169.0...175.0
1000 s: (166.0...178.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 96.0...98.0
1000 s: (93.0...101.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1170...1180

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 100.0...120.0
1000 s: (96.0...124.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.60 ..5.00
Del.quantity cm³/ 1000 s: 22.0...28.0
1000 s: (19.0...31.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 6,2 l
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 046 822
 Injection pump
 Pump designation : PES6P110A320RS3278
 EP type number : 0 412 016 735
 Governor
 Governor design. : RQ750PA1000
 Governer no. : 0 421 801 584
 Customer-spec. information
 Customer : RVI
 Engine : MIDR 060226
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 25...27
 Prestroke mm : 4.80...4.90
 : (4.75...4.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
BASIC SETTING
 1st speed rpm : 700
 Rack travel in mm : 12.20...12.30
 Del.quantity cm³/ : 11.4...11.7
 : 100 s: (11.1...11.9)
 Spread cm³ : 0.4
 : 100 s: (0.7)
 2nd speed rpm : 275.0
 Rack travel in mm : 7.1...7.5
 Del.quantity cm³/ : 1.3...1.8
 : 100 s: (1.0...2.0)
 Spread cm³ : 0.4
 : 100 s: (0.7)
FULL LOAD DELIV. AT FULL LOAD STOP
 1st version
 Speed rpm : 700
 Del.quantity : 114.0...117.0
 : 1000 : (111.5...119.5)
 Spread cm³ : 4.00
 : 1000 : (7.50)
RATED SPEED
 1st version
 Testing:
 1st rack travel in: 11.20
 Speed rpm : 750...755
 2nd rack travel in: 4.00
 Speed rpm : 790...803
 4th rack travel in: 900
 Speed rpm : 0.00...1.00
 Remarks:
 :
 Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery
APPLICATION
 Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 9,8 q
 Edition : 18.09.91
 Replaces : 2.8.91
 Test oil : ISO-4113

Combination no. : 0 402 046 827

Injection pump
 Pump designation : PES6P120A320RS3284
 EP type number : 0 412 026 749
 Governor
 Governor design. : RQ275/1050PA999-3
 Governor no. : 0 421 801 598

Customer-spec. information
 Customer : RVI

Engine : MIDR/PR 062045

1st version kW : 186.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test Lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 9.90...10.00

Del.quantity cm³/ : 14.3...14.5

100 s: (14.0...14.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 4.3...4.7

Del.quantity cm³/ : 1.5...2.1

100 s: (1.2...2.4)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000

Del.quantity : 143.0...145.0

1000 : (140.0...148.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 8.90

Speed rpm : 1130...1145

2nd rack travel in: 4.00

Speed rpm : 1195...1225
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 5.4

Testing:
Speed rpm : 200
Minimum rack trave: 6.20
Speed rpm : 275
Rack travel in mm : 4.40...4.60
Rack travel in mm : 2.00
Speed rpm : 320...360

TORQUE CONTROL
Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 700
Rack travel in m: 10.30...10.40
2nd speed rpm : 1050
Rack travel in m: 10.20...10.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 9.90...10.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.70...8.90
2nd pressure hPa : 200
Rack travel in m: 9.40...9.50
3rd pressure hPa : 140
Rack travel in m: 9.00...9.20

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1050
Del.quantity cm3/ : 140.0...146.0
1000 s: (137.0...149.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm3/ : 100.0...102.0
1000 s: (97.0...105.0)

BREAKAWAY
1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1130...1145

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 145.0...175.0
1000 s: (141.0...179.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.30...4.70
Del.quantity cm3/ : 15.0...21.0
1000 s: (12.0...24.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 12,0 l
 Edition : 29.11.91
 Replaces : 2.8.91
 Test oil : ISO-4113

Combination no. : 0 402 046 828

Injection pump
 Pump designation : PES6P120A320RS3288
 EP type number : 0 412 026 750
 Governor
 Governor design. : RQV275...1000PA995-2
 Governor no. : 0 421 813 940

Customer-spec. information
 Customer : RVI

Engine : MIDR 063540 M/3

1st version kW : 236.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.35...3.45
 : (3.30...3.50)
 Rack travel in mm : 18.00...21.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 11.70...11.80

Del.quantity cm³/ : 22.4...22.6

100 s: (22.1...22.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.4...4.8

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1070

travel mm : 8.30 ..8.50

2nd speed rpm : 275

travel mm : 1.20...1.40

3rd speed rpm : 500

travel mm : 3.60...4.20

4th speed rpm : 750

travel mm : 5.70...6.10

5th speed rpm : 1450

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1180

Rack travel in mm : 9.40...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 224.0...226.0

1000 : (221.0...229.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 296...304

Testing:

1st rack travel in: 10.70
Speed rpm : 1065...1075
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 244...252

Testing:

Speed rpm : 200
Minimum rack trave: 6.80
Speed rpm : 300
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

Speed rpm : 310...420

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.70...11.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.80
2nd pressure hPa : 280
Rack travel in m: 11.00...11.10
3rd pressure hPa : 160
Rack travel in m: 10.00...10.20

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1000

Del.quantity cm³/ : 214.0...220.0
 1000 s: (211.0...223.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 150.0...152.0
 1000 s: (147.0...155.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.70
Speed rpm : 1065...1075

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...190.0
 1000 s: (156.0...194.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.40...4.80
Del.quantity cm³/ : 16.0...22.0
 1000 s: (13.0...25.0)
Spread cm³ : 8.00
 1000 s: (12.00)

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 9,8 s
 Edition : 08.10.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : D 402 046 830

Injection pump
 Pump designation : PES6P120A320RS3290
 EP type number : 0 412 026 751
 Governor
 Governor design. : RQ275/950PA999-4
 Governer no. : 0 421 801 612

Customer-spec. information

Customer : RVI

Engine : MIDR/PRO62045

1st version kW : 151.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test Lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.20...4.30
 : (4.15...4.35)
 Rack travel in mm : 18.00...21.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 12.80...12.90

Del.quantity cm³/ : 13.9...14.1

100 s: (13.6...14.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 4.3...4.5

Del.quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500

Aneroid pressure h: 1000

Del.quantity : 139.0...141.0

1000 : (136.0...144.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.80

Speed rpm : 1010...1025

2nd rack travel in: 4.00

Speed rpm : 1095...1125
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 8.4

Testing:
Speed rpm : 200
Minimum rack trave: 6.10
Speed rpm : 275
Rack travel in mm : 4.30...4.50
Rack travel in mm : 2.00
Speed rpm : 315...355

TORQUE CONTROL
Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 500
Rack travel in m: 13.20...13.30
2nd speed rpm : 950
Rack travel in m: 13.10...13.30

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.80...12.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.20...12.30
2nd pressure hPa : 140
Rack travel in m: 12.40...12.60

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 950
Del.quantity cm3/ : 148.0...154.0
1000 s: (145.0...157.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 128.0...130.0
1000 s: (125.0...133.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1010...1025

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...170.0
1000 s: (136.0...174.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.30...4.50

Remarks:
:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 9,6 y 1
 Edition : 29.11.91
 Replaces : 27.9.91
 Test oil : ISO-4113

Combination no. : 0 402 046 832

Injection pump
 Pump designation : PES6P110A720RS3104
 EP type number : 0 412 016 712
 Governor
 Governor design. : RQV350...1100PA850-6
 Governor no. : 0 421 813 975

Customer-spec. information

Customer : KHD

Engine : BF6L513RC

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.90...14.00

Del.quantity cm³/ : 16.3...16.5

100 s: (16.0...16.8)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 350.0

Rack travel in mm : 7.8...8.0

Del.quantity cm³/ : 1.6...2.1

100 s: (1.4...2.4)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.10...1.30

2nd speed rpm : 410

travel mm : 2.60...3.20

3rd speed rpm : 590

travel mm : 3.90...4.50

4th speed rpm : 1160

travel mm : 8.60...8.80

5th speed rpm : 1215

travel mm : 9.80...10.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 163.0...165.0

1000 : (160.0...168.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 12.90
Speed rpm : 1130...1140
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1310
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 84...92

Testing:

Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 350
Rack travel in mm : 7.80...8.00

CONSTANT REGULATION

Speed rpm : 400...470

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.90...14.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.30...12.50
2nd pressure hPa : 450
Rack travel in m: 13.40...13.50
3rd pressure hPa : 370
Rack travel in m: 12.70...12.90

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm3/ : 162.0...166.0
1000 s: (159.0...169.0)
Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: -

Speed rpm : 450
Del.quantity cm3/ : 123.0...125.0
1000 s: (120.0...128.0)
Spread cm3 : 4.00
1000 s: (7.50)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.90
Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 170.0...200.0
1000 s: (166.0...204.0)

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 12,0 L
 Edition : 08.10.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 046 833

Injection pump
 Pump designation : PES6P120A320RS3295
 EP type number : 0 412 026 752
 Governor
 Governor design. : RQV275...1000PA995-3
 Governer no. : 0 421 813 977

Customer-spec. information
 Customer : RVI

Engine : MIDR 063540 L/3

1st version kW : 283.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80
 : (2.65...2.85)
 Rack travel in mm : 18.00...21.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.20...13.30

Del.quantity cm³/ : 27.1...27.3

100 s: (26.8...27.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.2...5.4
 Del.quantity cm³/ : 2.0...2.6
 100 s: (1.7...2.9)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1070
 travel mm : 8.20 ..8.40
 2nd speed rpm : 275
 travel mm : 1.20...1.40
 3rd speed rpm : 500
 travel mm : 3.60...4.20
 4th speed rpm : 750
 travel mm : 5.70...6.10
 5th speed rpm : 1450
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1165
 Rack travel in mm : 11.90...13.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 1000
 Del.quantity : 271.0...273.0
 1000 : (268.0...276.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 298...306

Setting point:
Speed rpm : 1165
Rack travel in mm : 12.7

Testing:
1st rack travel in: 12.20
Speed rpm : 1065...1075
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 244...252

Testing:
Speed rpm : 200
Minimum rack trave: 7.30
Speed rpm : 300
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION
Speed rpm : 310...420

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 13.20...13.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.50...8.70
2nd pressure hPa : 880
Rack travel in m: 12.10...12.20
3rd pressure hPa : 320
Rack travel in m: 9.30...9.70

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1000
Del.quantity cm³/ : 247.0...253.0
1000 s: (244.0...256.0)
Speed rpm : 600
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 105.0...10.7
1000 s: (102.0...13.7)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1065...1075

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 155.0...185.0
1000 s: (151.0...189.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 20.0...26.0
1000 s: (17.0...29.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 y 2
 Edition : 22.11.91
 Replaces : 21.8.92
 Test oil : ISO-4113

Combination no. : 0 402 076 742

Injection pump
 Pump designation : PES6P120A720RS3203
 EP type number : 0 412 026 728
 Governor
 Governor design. : RSV400...1050P2A534-
 Governor no. : 0 421 833 356

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076 HZ030

1st version kW : 193.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.10...12.20

Del.quantity cm³/

100 s: (15.2...15.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 6.2...6.4

Del.quantity cm³/

100 s: (2.8...3.8)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 900

Del.quantity : 154.5...156.5

1000 : (152.5...158.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degr- s: 1...49

Testing:

1st rack travel in: 11.10
 Speed rpm : 1095...1105
 2nd rack travel in: 4.00
 Speed rpm : 1155...1165
 3rd rack travel in: 4.00
 Speed rpm : 1155...1185
 4th rack travel in: 1300
 Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
 position degrees: 18...26
 Setting point w/out bumper spring
 Speed rpm : 400
 Rack travel in mm : 5.8

Testing:

Speed rpm : 100
 Minimum rack trave: 19.00
 Speed rpm : 400
 Rack travel in mm : 6.20...6.40

TORQUE CONTROL

Torque control curve - 1st version
 1st speed rpm : 1050
 Rack travel in m: 12.10...12.20
 2nd speed rpm : 700
 Rack travel in m: 13.60...13.80

Aneroid/Altitude Compensator Test**1st version**

Setting
 Speed rpm : 500
 Pressure hPa : 900
 Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
 Rack travel in m: 10.70...10.90
 2nd pressure hPa : 375
 Rack travel in m: 11.20...11.60
 3rd pressure hPa : 590
 Rack travel in m: 12.70...12.90

FUEL DELIVERY CHARACTERISTICS**1st version**

Aneroid pressure h: 900
 Speed rpm : 700
 Del.quantity cm3/ : 188.5...194.5
 1000 s: (185.5...197.5)

Aneroid pressure h: -
 Speed rpm : 800

Del.quantity cm3/ : 116.5...120.5
 1000 s: (114.5...122.5)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 11.10
 Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm3/ : 90.0...110.0
 1000 s: (85.0...115.0)
 Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
 Rack travel in mm : 6.20...6.40
 Del.quantity cm3/ : 30.0...36.0
 1000 s: (28.0...38.0)
 Spread cm3 : 8.00
 1000 s: (12.00)

Remarks:

: JOHN DEERE # RE47549

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 y 3
 Edition : 22.11.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 076 743

Injection pump
 Pump designation : PES6P120A720RS3203
 EP type number : 0 412 026 728
 Governor
 Governor design. : RSV425...1100P2A534-8
 Governer no. : 0 421 833 370

Customer-spec. information
Customer : JOHN DEERE

Engine : 6076 AN 030

1st version kW : 187.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 101

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test Lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00x3.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.80...11.90

Del.quantity cm³/

100 s: (14.7...15.4)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/

100 s: (2.5...3.4)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del.quantity : 150.0...152.0

1000 : (147.5...154.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever position degrees: 40...48

Testing:

1st rack travel in: 10.80
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1220...1230
3rd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.80...11.90
2nd speed rpm : 700
Rack travel in m: 12.60...12.80

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.60...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.40...10.60
2nd pressure hPa : 720
Rack travel in m: 11.00...11.10
3rd pressure hPa : 895
Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm3/ : 173.5...178.5
1000 s: (171.0...181.0)
Aneroid pressure h: -
Speed rpm : 800

Del.quantity cm3/ : 120.0...124.0
1000 s: (117.0...127.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.80
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 90.0...110.0
1000 s: (85.0...115.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.70...5.90
Del.quantity cm3/ : 28.0...32.0
1000 s: (25.5...34.5)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE47394

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 21,0 b4
 Edition : 22.11.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 640 815A

Injection pump
 Pump designation : PE12P120A520LS7824
 EP type number : 0 412 620 816
 Governor
 Governor design. : RQV300...1150PA902-4
 Governer no. : 0 421 813 870

Cust. part no. : 3-7003

Customer-spec. information

Customer : MAN

Engine : D2842LYE

1st version kW : 588.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60
 : (4.45...4.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 12- 1- 5- 9- 8- 3-
 4- 11- 10- 2- 6- 7

Phasing : 0°, 5°, 10°, 15°, 20°, 25°, 30°, 35°, 40°, 45°, 50°, 55°, 60°, 65°, 70°, 75°, 80°, 85°, 90°, 95°, 100°, 105°, 110°, 115°, 120°, 125°, 130°, 135°, 140°, 145°, 150°, 155°, 160°, 165°, 170°, 175°, 180°, 185°, 190°, 195°, 200°, 205°, 210°, 215°, 220°, 225°, 230°, 235°, 240°, 245°, 250°, 255°, 260°, 265°, 270°, 275°, 280°, 285°, 290°, 295°, 300°

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 26.4...26.6

100 s: (26.1...26.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 500

Rack travel in mm : 9.1...9.3

Del.quantity cm³/ : 14.9...15.1

100 s: (14.6...15.4)

Spread cm³ : 0.8

100 s: (1.2)

3rd speed rpm : 300

Rack travel in mm : 7.20...7.40

Del.quantity cm³/ : 5.2...6.0 *

100 s: (-)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.60

2nd speed rpm : 450

travel mm : 2.90...3.50

3rd speed rpm : 750

travel mm : 5.60...6.00

4th speed rpm : 1150

travel mm : 9.50...9.70

5th speed rpm : 1400

travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1200
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050
Aneroid pressure h: 1300
Del.quantity : 264.0...266.0
1000 : (261.0...269.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 118...126

Testing:

1st rack travel in: 12.60
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 79...87

Testing:

Speed rpm : 100
Minimum rack trave: 8.90
Speed rpm : 300
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00
Speed rpm : 470...530

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1300
Rack travel mm : 13.60...13.70

Measurement:

Speed 1/min : 500

1st pressure hPa :

Rack travel in m: 9.10...9.30

2nd pressure hPa :

Rack travel in m: 9.50...9.60

3rd pressure hPa :

Rack travel in m: 12.40...12.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 149.0...151.0
1000 s: (146.0...154.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0 *
1000 s: (-)

Speed rpm : 100
Del.quantity cm³/ : -
1000 s: (-)

Rack travel in mm : 17.5...21.0

HIGH IDLE

1st version

Aneroid pressure h: -
Speed rpm : 500
Rack travel in mm : < 7.00
Del.quantity cm³/ : - **
1000 s: (-)

2nd version

Aneroid pressure h: -
Speed rpm : 500
Rack travel in mm : < 7.50
Del.quantity cm³/ : < 50.0
1000 s: (-)

3rd version

Aneroid pressure h: -
Speed rpm : 500
Rack travel in mm : 8.40...8.60
Del.quantity cm³/ : 125.0...200.0
1000 s: (-)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.20...7.40
Del.quantity cm³/ : 52.0...60.0 *
1000 s: (-)

Remarks:

:

* applies to cylinders 4, 5, 6, 8 ,10
and 12

** applies for cylinders 1, 2, 3, 7, 9
and 11

APPLICATION

Ship

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 21.9 u 1
 Edition : 29.11.91
 Replaces : 18.1.91
 Test oil : ISO-4113

 Combination no. : 0 402 640 823

 Injection pump
 Pump designation : PE12P120A320LS7805
 EP type number : 0 412 620 802
 Governor
 Governor design. : RQV350...1050PA781-1
 Governor no. : 0 421 813 890

 Customer-spec. information
 Customer : MERCEDES-BENZ

 Engine : OM 444 LA

 1st version kW : 485.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

 Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

 Overflow
 quantity min. 1/h: 150...160

 Test nozzle holder
 assembly : 1 688 901 019

 Opening
 pressure, bar : 207...210

 Orifice plate
 diameter mm : 0,8

 Test lines : 1 680 750 067

 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm	: 5.20...5.30
	: (5.15...5.35)
Rack travel in mm	: 9.00...12.00
Firing order	: 12- 1- 5- 9- 8- 3- 4- 11- 10- 2- 6- 7

Phasing	: 0-45-60-105-120-165- 180-225-240-285-300- 345
Tolerance + - °	: 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm	: 1050
---------------	--------

Rack travel in mm	: 14.40...14.50
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Del.quantity cm ³ /	: 21.1...21.3
--------------------------------	---------------

100 s:	(20.8...21.6)
--------	---------------

Spread cm ³	: 0.5
------------------------	-------

100 s:	(0.9)
--------	-------

2nd speed rpm	: 350.0
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Rack travel in mm	: 5.4...6.0
-------------------	-------------

Del.quantity cm ³ /	: 1.4...2.0
--------------------------------	-------------

100 s:	(1.1...2.3)
--------	-------------

Spread cm ³	: 0.8
------------------------	-------

100 s:	(1.2)
--------	-------

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm	: 350
travel mm	: 1.30...1.80
2nd speed rpm	: 454
travel mm	: 2.80...3.30
3rd speed rpm	: 900
travel mm	: 5.40...5.90
4th speed rpm	: 1107
travel mm	: 7.80...8.30
5th speed rpm	: 1204
travel mm	: 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1180

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050
Aneroid pressure h: 1100
Del.quantity : 211.0...213.0
1000 : (208.0...216.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 13.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 64...72

Testing:

Speed rpm : 250
Minimum rack trave: 7.00
Speed rpm : 350
Rack travel in mm : 5.40...6.00

CONSTANT REGULATION

Speed rpm : 400...600

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.00...11.30

Measurement

Speed 1/min : 500

1st pressure hPa : 350
Rack travel in m: 11.70...11.90
2nd pressure hPa : 500
Rack travel in m: 13.00...13.30

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 600
Del.quantity cm³/ : 210.0...213.0
1000 s: (207.0...216.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 141.0...143.0
1000 s: (138.0...146.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 210.0...230.0
1000 s: (206.0...234.0)

TESTING & SETTING RACK TRAVEL SENSOR

Supply voltage : 24
Set quantity with control lever
cm³/ : 14.0...20.0
1000 s: (-)
Voltage : 0.340...0.342
Rack travel in mm : 12.0
Voltage volt : 0.578...0.548

Remarks:

APPLICATION

Rail car

Rail car

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 16,2 b2
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 857C
 Injection pump
 Pump designation : PE6P130A720RS7150
 EP type number : 0 412 636 808
 Governor
 Governor design. : RQV250...900PA881
 Governer no. : 0 421 813 676

Customer-spec. information

Customer : PENTA
 Engine : TAMD 162 A (PD)

1st version kW : 450.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067
 Outside diameter x Wall thickness x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.60...12.70

Del.quantity cm³/ : 38.3...38.5

100 s: (37.9...38.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 3.7...3.9

Del.quantity cm³/ : 1.7...2.2

100 s: (1.4...2.4)

Spread cm³ : 0.5

100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 250
travel mm		: 0.90...1.30
2nd speed	rpm	: 350
travel mm		: 2.00...2.60
3rd speed	rpm	: 700
travel mm		: 3.90...4.50
4th speed	rpm	: 1075
travel mm		: 8.10...8.30
5th speed	rpm	: 1160
travel mm		: 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 383.0...385.0
1000 : (379.0...389.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 115...123

Testing:

1st rack travel in: 11.60
Speed rpm : 1070...1080
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 63...71

Testing:

Speed rpm : 100
Minimum rack travel: 5.30
Speed rpm : 250
Rack travel in mm : 3.70...3.90

CONSTANT REGULATION

Speed rpm : 250...400

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.60...12.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.60...8.80
2nd pressure hPa : 340
Rack travel in m: 8.80...8.90
3rd pressure hPa : 970
Rack travel in m: 12.20...12.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 215.0...219.0
1000 s: (212.0...222.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 1070...1080

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.70...3.90
Del.quantity cm³/ : 17.0...22.0
1000 s: (14.5...24.5)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 3.0...3.1 mm.

APPLICATION

Ship

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,1 j2
 Edition : 22.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 866
 Injection pump
 Pump designation : PE6P120A720RS7020
 EP type number : 0 412 626 828
 Governor
 Governor design. : RQ200/1000PA713-8
 Governer nc. : 0 421 801 517
 Customer-spec. information
 Customer : SCANIA
 Engine : DS11 74
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 25...27
 Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 15.9...16.1

100 s: (15.6...16.4)

Spread cm³ : 0.5

100 s: (0.8)

2nd speed rpm : 225.0

Rack travel in mm : 4.6...5.0

Del.quantity cm³/ : 1.8...2.2

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 159.0...161.0

1000 : (156.0...164.0)

Spread cm³ : 5.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.5

Testing:

1st rack travel in: 9.90

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1185...1215

4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 225
Rack travel in mm : 4.7

Testing:

Speed rpm : 100
Minimum rack trave: 6.20
Speed rpm : 225
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 305...345

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 10.90...11.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.20...9.60
2nd pressure hPa : 150
Rack travel in m: 9.90...10.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1000
Del.quantity cm3/ : 157.0...165.0
1000 s: (155.0...167.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 116.0...120.0
1000 s: (114.0...122.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 275.0...325.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.60...4.80

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,1 b4
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 880

Injection pump
 Pump designation : PE6P120A720RS7126
 EP type number : 0 412 626 815
 Governor
 Governor design. : RQV200...1050PA725-5
 Governer no. : 0 421 813 814

Customer-spec. information
 Customer : SCANIA

Engine : DS 11

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.10...14.20

Del.quantity cm³ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 4.5...4.9

Del.quantity cm³ : 1.5...1.9

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

travel mm : 1.20...1.60

2nd speed rpm : 350

travel mm : 2.30...2.90

3rd speed rpm : 650

travel mm : 4.00...4.60

4th speed rpm : 1095

travel mm : 8.20...8.40

5th speed rpm : 1215

travel mm : 9.70...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1200

Rack travel in mm : 8.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 234.0...236.0

1000 : (231.0...239.0)

Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:
1st rack travel in: 13.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1320
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 100
Minimum rack travel: 6.10
Speed rpm : 225
Rack travel in mm : 4.50...4.70
Rack travel in mm : 2.00
Speed rpm : 360...420

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.10...14.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.90
2nd pressure hPa : 510
Rack travel in m: 13.00...13.10
3rd pressure hPa : 250
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1050
Del.quantity cm³/ : 222.0...230.0
 1000 s: (220.0...232.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 150.0...154.0
 1000 s: (148.0...156.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 275.0...325.0
 1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.50...4.70

Remarks:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO
diaphragm.

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania
on November 29, 1990

Engine model DSI 11 - 16° before top
dead center.

Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11.7 k7
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 894

Injection pump
 Pump designation : PE6P120A320RS7194
 EP type number : 0 412 626 834
 Governor
 Governor design. : RQ250/1000PA936
 Governor no. : 0 421 801 507

Cust. part no. : T3

Customer-spec. information
 Customer : DAF

Engine : WS 295

1st version kW : 295.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

E09

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.70...13.80

Del.quantity cm³/ : 24.5...24.7
 100 s: (24.2...25.0)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 7.6...8.0
 Del.quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 550
 Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 850
 Aneroid pressure h: 1000
 Del.quantity : 245.0...247.0
 1000 : (242.0...250.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 550
 Rack travel in mm : 15.8

Testing:

1st rack travel in: 12.70
Speed rpm : 1035...1050
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 7.0

Testing:

Speed rpm : 100
Minimum rack trave: 8.50
Speed rpm : 250
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 345...385

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 14.70...14.80
2nd speed rpm : 1000
Rack travel in m: 14.60...14.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.70...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 11.00...11.20
2nd pressure hPa : 460
Rack travel in m: 13.00...13.10
3rd pressure hPa : 310
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 171.0...173.0
1000 s: (168.0...176.0)

BREAKAWAY

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 j3
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 895

Injection pump
 Pump designation : PE6P120A320RS7202
 EP type number : 0 412 626 835
 Governor
 Governor design. : RQV250...1000PA939
 Governor no. : 0 421 813 829

Customer-spec. information

Customer : DAF

Engine : WS 268

1st version kW : 268.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm	: 5.20...5.30
	: (5.15...5.35)
Rack travel in mm	: 9.00...12.00
Firing order	: 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.90...12.00

Del.quantity cm³/

100 s: (21.4...22.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.9...5.3

Del.quantity cm³/

100 s: (2.0...3.2)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 250
travel mm		: 0.70...1.10
2nd speed	rpm	: 400
travel mm		: 2.50...3.10
3rd speed	rpm	: 700
travel mm		: 4.50...4.90
4th speed	rpm	: 1045
travel mm		: 7.80...8.00
5th speed	rpm	: 1350
travel mm		: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 217.0...219.0
1000 : (214.0...222.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:

1st rack travel in: 10.90
Speed rpm : 1030...1040
2nd rack travel in: 4.00
Speed rpm : 1120...1150
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 74...82

Testing:

Speed rpm : 100
Minimum rack travel: 6.60
Speed rpm : 250
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 270...380

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 11.90...12.00

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.40...9.60
2nd pressure hPa : 320
Rack travel in m: 11.10...11.20
3rd pressure hPa : 190
Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³ : 153.0...155.0
1000 s: (150.0...158.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1030...1040

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.90...5.30
Del.quantity cm³/s : 23.0...29.0
1000 s: (20.0...32.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 k8
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 896

Injection pump
 Pump designation : PE6P120A320RS7194
 EP type number : 0 412 626 834
 Governor
 Governor design. : RQV250...1000PA939
 Governer no. : 0 421 813 829

Cust. part no. : T3

Customer-spec. information
 Customer : DAF

Engine : WS 295

1st version kW : 295.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.25)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.70...13.80

Del.quantity cm³/ : 24.5...24.7

100 s: (24.2...25.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 7.6...8.0
 Del.quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 250
	travel mm	: 0.70...1.10
2nd speed	rpm	: 400
	travel mm	: 2.50...3.10
3rd speed	rpm	: 700
	travel mm	: 4.50...4.90
4th speed	rpm	: 1045
	travel mm	: 7.80...8.00
5th speed	rpm	: 1350
	travel mm	: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850
Aneroid pressure h: 1000
Del.quantity : 245.0...247.0
1000 : (242.0...250.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 115...123

Testing:

1st rack travel in: 12.70
Speed rpm : 1030...1040
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1
Control lever
position degrees: 81...89

Testing:

Speed rpm : 100
Minimum rack trave: 8.50
Speed rpm : 250
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

Speed rpm : 275...385

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.70...13.80

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 11.00...11.20
2nd pressure hPa : 460
Rack travel in m: 13.00...13.10
3rd pressure hPa : 310
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 600

Del.quantity cm³/ : 171.0...173.0
1000 s: (168.0...176.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.70
Speed rpm : 1030...1040

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.90...7.10

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,1 L2
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 904
 Injection pump
 Pump designation : PE6P120A720RS7126
 EP type number : 0 412 626 815
 Governor
 Governor design. : RQV300...900PA795-10
 Governor no. : 0 421 813 846

Customer-spec. information
 Customer : SCANIA

Engine : DS11

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.10...14.20

Del.quantity cm³/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.4...4.8

Del.quantity cm³/ : 1.5...1.9

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.30...1.70

2nd speed rpm : 350
travel mm : 1.90...2.50

3rd speed rpm : 650
travel mm : 4.70...5.30

4th speed rpm : 945
travel mm : 7.90...8.10

5th speed rpm : 1045
travel mm : 9.20...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 970

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 234.0...236.0

1000 : (231.0...239.0)

Spread cm³ : 6.00
 1000 : (9.00)

Del.quantity cm³/ : 150.0...154.0
 1000 s: (148.0...156.0)

RATED SPEED

1st version
Control lever
position degrees: 93...101

Testing:
1st rack travel in: 13.10
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 1030...1060
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 61...69

Testing:
Speed rpm : 100
Minimum rack travel: 10.00
Speed rpm : 300
Rack travel in mm : 4.40...4.60
Rack travel in mm : 2.00
Speed rpm : 330...390

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.10...14.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.90
2nd pressure hPa : 510
Rack travel in m: 13.00...13.10
3rd pressure hPa : 250
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 900
Del.quantity cm³/ : 220.0...228.0
 1000 s: (218.0...230.0)
Aneroid pressure h: -
Speed rpm : 500

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.10
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 275.0...325.0
 1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.40...4.60

Remarks:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO
diaphragm.

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania
on November 29, 1990

Engine model DSI 11 - 16° before top
dead center.

Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11.7 LS
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 912

Injection pump
 Pump designation : PE6P120A320RS7218
 EP type number : 0 412 626 839
 Governor
 Governor design. : RQ250/1000PA936-1
 Governor no. : 0 421 801 508

Cust. part no. : T3

Customer-spec. information
 Customer : DAF

Engine : WS 268 G

1st version kW : 268.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.30...5.40
 : (5.25...5.45)
 Rack travel in mm : 14.50...15.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 14.5...15.5
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 15.00...15.10

Del.quantity cm³/ : 23.7...23.9

100 s: (23.4...24.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...7.0

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.80...17.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 237.0...239.0

1000 : (234.0...242.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550
Rack travel in mm : 16.4

Testing:

1st rack travel in: 14.00
Speed rpm : 1035...1050
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack trave: 6.50
Speed rpm : 250
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 310...350

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 15.30...15.40
2nd speed rpm : 1000
Rack travel in m: 15.20...15.40

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 15.00...15.10

Measurement

Speed 1/min : 600

1st pressure hPa : -

Rack travel in m: 12.40...12.60

2nd pressure hPa : 480

Rack travel in m: 14.20...14.30

3rd pressure hPa : 330

Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600

Del.quantity cm³/ 1000 s: 167.0...169.0
1000 s: (164.0...172.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 14.00
Speed rpm : 1035...1050

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.90...5.10

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11.7 L6
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 913

Injection pump
 Pump designation : PE6P120A320RS7218
 EP type number : 0 412 626 839
 Governor
 Governor design. : RQV250...1000PA939
 Governor no. : 0 421 813 829

Cust. part no. : T3

Customer-spec. information
 Customer : DAF

Engine : WS 268 G

1st version kW : 268.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.30...5.40
 : (5.25...5.45)
 Rack travel in mm : 14.50...15.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 14.5...15.5
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 15.00...15.10

Del.quantity cm³/ : 23.7...23.9

100 s: (23.4...24.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 6.6...7.0
 Del.quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1045
	travel mm	: 7.80...8.00
2nd speed	rpm	: 250
	travel mm	: 0.70...1.10
3rd speed	rpm	: 400
	travel mm	: 2.50...3.10
4th speed	rpm	: 700
	travel mm	: 4.50...4.90
5th speed	rpm	: 1350
	travel mm	: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850
Aneroid pressure h: 1000
Del.quantity : 237.0...239.0
1000 : (234.0...242.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:

1st rack travel in: 14.00
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 78...86

Testing:

Speed rpm : 100
Minimum rack trave: 6.50
Speed rpm : 250
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 270...380

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 15.00...15.10

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 12.40...12.60
2nd pressure hPa : 480
Rack travel in m: 14.20...14.30
3rd pressure hPa : 330
Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ 1000 s: 167.0...169.0
1000 s: (164.0...172.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 14.00
Speed rpm : 1040...1050

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.90...5.10

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9.6.0
 Edition : 23.10.91
 Replaces : 30.8.91
 Test oil : ISO-4113

Combination no. : 0 402 646 917

Injection pump
 Pump designation : PE6P120A320LS7834
 EP type number : 0 412 626 841
 Governor
 Governor design. : RQ300/950PA971
 Governor no. : 0 421 801 543

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.50...14.70

Del.quantity cm³/ : 22.7...22.9

100 s: (22.4...23.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.9

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1100

Del.quantity : 227.0...229.0

1000 : (224.0...232.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.90
Speed rpm : 990...1005
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.6

Testing:

Speed rpm : 200
Minimum rack trave: 8.50
Speed rpm : 300
Rack travel in mm : 6.30...6.90
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.35
2nd speed rpm : 950
Rack travel in m: 14.90...15.10
3rd speed rpm : 800
Rack travel in m: 15.20...15.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1100
Rack travel mm : 14.50...14.70

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 10.70...10.90
2nd pressure hPa : 700
Rack travel in m: 13.50...13.70
3rd pressure hPa : 1400
Rack travel in m: 14.60...14.80 *
4th pressure hPa : 1550
Rack travel in m: 14.90...15.10
5th pressure hPa : -
Rack travel in m: 9.30...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800
Speed rpm : 950

Del.quantity cm³/ : 236.0...239.0
1000 s: (233.0...242.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1800
Speed rpm : 800
Del.quantity cm³/ : 243.0...247.0
1000 s: (240.0...250.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 122.0...124.0
1000 s: (119.0...127.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.90
Speed rpm : 990...1005

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13/8 h
 Edition : 29.11.91
 Replaces : 27.5.91
 Test oil : ISO-4113

Combination no. : 0 402 646 923

Injection pump
 Pump designation : PE6P130A720RS7225
 EP type number : 0 412 636 817
 Governor
 Governor design. : RQV300...900PA946
 Governor no. : 0 421 813 845

Customer-spec. information
 Customer : IVECO-UNIC

Engine : 8210.42.061

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 11.50...12.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.60...12.70

Del.quantity cm³/ : 27.0...27.3

100 s: (26.6...27.6)

Spread cm³ : 0.6

100 s: (1.0)

2nd speed rpm : 300.0

Rack travel in mm : 4.4...4.8

Del.quantity cm³/ : 1.9...2.5

100 s: (1.5...2.9)

Spread cm³ : 1.0

100 s: (1.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 945

travel mm : 8.40...8.60

2nd speed rpm : 300

travel mm : 1.00...1.40

3rd speed rpm : 500

travel mm : 3.30...3.90

4th speed rpm : 700

travel mm : 5.50...5.90

5th speed rpm : 1200

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 935

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 900

Del.quantity : 270.0...273.0

1000 : (266.5...276.5)

Spread cm³ : 6.00
1000 : (10.00)

Del.quantity cm³/ : 202.0...205.0
1000 s: (198.5...208.5)

RATED SPEED

1st version
Control lever
position degrees: 117...125

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...155.0
1000 s: (121.0...159.0)

LOW IDLE 1

Control lever
position degrees: 72...80

Speed rpm : 100
Minimum rack trave: 6.10
Speed rpm : 300
Rack travel in mm : 4.50...4.70

Speed rpm : 300
Rack travel in mm : 4.40...4.80
Del.quantity cm³/ : 19.0...25.0
1000 s: (15.0...29.0)

Speed cm³ : 10.00
1000 s: (14.00)

Testing:

Aneroid/Altitude
Compensator Test

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.60...12.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 350
Rack travel in m: 12.00...12.10
3rd pressure hPa : 300
Rack travel in m: 10.90...11.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 500
Del.quantity cm³/ : 285.0...292.0
1000 s: (281.5...295.5)

Aneroid pressure h: -
Speed rpm : 500

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,7 c
 Edition : 29.11.91
 Replaces : 3.5.91
 Test oil : ISO-4113

Combination no. : 0 402 646 934

Injection pump
 Pump designation : PE6P120A320RS7229
 EP type number : 0 412 626 844
 Governor
 Governor design. : RQ275/1150PA987
 Governer no. : 0 421 801 578

Customer-spec. information
 Customer : DAF

Engine : RS 200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 13.00...14.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.50...5.70
 & maximum rack tra: 13.0...14.0
 Difference ° CS : 3.25...4.75

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.50...13.60

Del.quantity cm³/ : 16.3...16.5

100 s: (16.0...16.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 163.0...165.0

1000 : (160.0...168.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 12.50
Speed rpm : 1185...1200
2nd rack travel in: 4.00
Speed rpm : 1270...1300
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack trave: 7.10
Speed rpm : 275
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.80...13.90
2nd speed rpm : 1150
Rack travel in m: 13.70...13.90

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.50...13.60

Measurement

Speed 1/min : 600

1st pressure hPa : -

Rack travel in m: 11.70...11.90
2nd pressure hPa : 180
Rack travel in m: 12.60...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 117.0...119.0
1000 s: (114.0...122.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.50
Speed rpm : 1185...1200

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.50...5.70

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13,8 h2
 Edition : 29.11.91
 Replaces : 8.10.91
 Test oil : ISO-4113

 Combination no. : 0 402 646 947

 Injection pump
 Pump designation : PE6P130A720RS7225
 EP type number : 0 412 636 817
 Governor
 Governor design. : RQV300...950PA1002
 -1K
 Governer no. : 0 421 815 280

 Customer-spec. information
 Customer : IVECO-UNIC

 Engine : 8210.42.400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

 Opening pressure, bar : 207...210

 Orifice plate diameter mm : 0,8

 Test lines : 1 680 750 015

 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)

Rack travel in mm : 13.50...14.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

 Tolerance + - ° : 0.50 (0.75)

 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 950

 Rack travel in mm : 13.80...13.90

 Del.quantity cm³/ : 30.6...30.9

 100 s: (30.2...31.2)

Spread cm³ : 0.6

 100 s: (1.0)

2nd speed rpm : 300.0
 Rack travel in mm : 4.8...5.2
 Del.quantity cm³/ : 1.9...2.5

 100 s: (1.5...2.9)

Spread cm³ : 1.0

 100 s: (1.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 995
travel mm		: 8.50...8.70
2nd speed	rpm	: 300
travel mm		: 1.00...1.40
3rd speed	rpm	: 500
travel mm		: 3.30...3.90
4th speed	rpm	: 750
travel mm		: 5.80...6.20
5th speed	rpm	: 1300
travel mm		: 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1125
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 950
 Aneroid pressure h: 900
 Del.quantity : 306.0...309.0

 1000 : (302.5...312.5)

Spread cm³ : 6.00
 1000 : (10.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 12.80
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1100...1130
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...74

Testing:
Speed rpm : 100
Minimum rack trave: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION
Speed rpm : 340...460

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 13.80...13.90
2nd speed rpm : 750
Rack travel in m: 13.70...13.90
3rd speed rpm : 500
Rack travel in m: 12.50...12.70
4th speed rpm : 300
Rack travel in m: 12.10...12.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 950
Pressure hPa : 900
Rack travel mm : 13.80...13.90

Measurement
Speed 1/min : 950

1st pressure hPa : -
Rack travel in m: 10.50...10.70
2nd pressure hPa : 560
Rack travel in m: 12.60...12.70
3rd pressure hPa : 350

Rack travel in m: 10.80...11.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 500
Del.quantity cm³/ 1000 s: 273.0...279.0
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 195.0...198.0
1000 s: (191.5...201.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 140.0...170.0
1000 s: (136.0...174.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.80...5.20
Del.quantity cm³/ 1000 s: (15.0...29.0)
Spread cm³ : 10.00
1000 s: (14.00)

Remarks:
:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 7,2 a
 Edition : 23.10.91
 Replaces : 21.8.91
 Test oil : ISO-4113

Combination no. : 0 402 646 948

Injection pump
 Pump designation : PE6P120A320RS7233-1
 EP type number : 0 412 626 849
 Governor
 Governor design. : RQV300...1300PA1003K
 Governor no. : 0 421 815 281

Customer-spec. information
 Customer : PENTA

Engine : TAMD 72 A

1st version kW : 316.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.30...3.40
 : (3.25...3.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 14.60...14.70

Del.quantity cm³/ : 27.0...27.2

100 s: (26.7...27.5)

Spread cm³ : 0.6

100 s: (1.0)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.2

Del.quantity cm³/ : 2.0...2.6

100 s: (1.7...2.7)

Spread cm³ : 0.7

100 s: (1.1)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
travel mm		: 2.00...2.40
2nd speed	rpm	: 550
travel mm		: 4.00...4.60
3rd speed	rpm	: 1000
travel mm		: 7.00...7.60
4th speed	rpm	: 1350
travel mm		: 10.10...10.30
5th speed	rpm	: 1430
travel mm		: 10.90...11.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 6.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 2400

Del.quantity : 270.0...272.0
1000 : (267.0...275.0)
Spread cm³ : 6.00
1000 : (10.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:
1st rack travel in: 13.60
Speed rpm : 1330...1340
2nd rack travel in: 4.00
Speed rpm : 1460...1490
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 71...79

Testing:
Speed rpm : 100
Minimum rack trave: 7.00
Speed rpm : 300
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION
Speed rpm : 300...520

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 14.60...14.70
2nd speed rpm : 1200
Rack travel in m: 14.00...14.30
3rd speed rpm : 1000
Rack travel in m: 12.50...13.00
4th speed rpm : 800
Rack travel in m: 12.10...12.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1300
Pressure hPa : 2400
Rack travel mm : 14.60...14.70

Measurement
Speed 1/min : 1300

1st pressure hPa : -
Rack travel in m: 7.20...7.50
2nd pressure hPa : 320
Rack travel in m: 7.40...7.50

3rd pressure hPa : 1230
Rack travel in m: 11.80...12.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 2400
Speed rpm : 800
Del.quantity cm³/ s : 251.0...257.0
1000 s: (248.0...260.0)
Spread cm³ : 9.00
1000 s: (13.0)
Aneroid pressure h: -
Speed rpm : 800
Del.quantity cm³/ s : 125.0...127.0
1000 s: (122.0...130.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.60
Speed rpm : 1330...1340

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.40...5.60

Remarks:

:

Start-of-delivery setting with ROBO
diaphragm.

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 n1
 Edition : 29.11.91
 Replaces : 27.9.91
 Test oil : ISO-4113

Combination no. : 0 402 646 949

Injection pump

Pump designation : PE6P120A320RS7230Z
 EP type number : 0 412 626 848
 Governor
 Governor design. : RQV250...1000PA990K
 Governer no. : 0 421 815 274

Customer-spec. information

Customer : DAF

Engine : WS 295 G

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)

Rack travel in mm : 13.20...14.20

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 13.70...13.80

Del.quantity cm³/ : 25.4...25.6

100 s: (25.1...25.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.8...6.0

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.30...1.70

2nd speed rpm : 285

travel mm : 2.10...2.50

3rd speed rpm : 1030

travel mm : 9.60...10.00

4th speed rpm : 1145

travel mm : 11.20...11.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1070

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Aneroid pressure h: 1500

Del.quantity : 254.0...256.0

1000 : (251.0...259.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 12.70
Speed rpm : 1030...1040
2nd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1275
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever

position degrees: 67...75

Testing:

Speed rpm : 100
Minimum rack trave: 6.70
Speed rpm : 250
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 320...360

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

1st speed rpm : 500
Rack travel in m: 12.20...12.30
2nd speed rpm : 550
Rack travel in m: 12.20...12.40
3rd speed rpm : 725
Rack travel in m: 12.60...12.80
4th speed rpm : 850
Rack travel in m: 13.20...13.40
5th speed rpm : 980
Rack travel in m: 14.00...14.20

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 980
Pressure hPa : 1500
Rack travel mm : 13.70...13.80

Measurement

Speed 1/min : 980

1st pressure hPa : -

Rack travel in m: 8.10...8.30

2nd pressure hPa : 430

Rack travel in m: 10.80...10.90

3rd pressure hPa : 190

Rack travel in m: 9.10...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 500
Del.quantity cm³/ 1000 s: 263.0...267.0
cm³ : (260.0...270.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ 1000 s: 143.0...145.0
cm³ : (140.0...148.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.70
Speed rpm : 1030...1040

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.10...5.30

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9/6 o 6
 Edition : 29.11.91
 Replaces : 27.9.91
 Test oil : ISO-4113

Combination no. : 0 402 646 954

Injection pump
 Pump designation : PE6P120A320LS7834
 EP type number : 0 412 626 841
 Governor
 Governor design. : RQ300/1050PA993-5
 Governer no. : 0 421 801 610

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.70...13.90

Del.quantity cm³/ : 20.9...21.1

100 s: (20.6...21.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.9...6.5
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 209.0...211.0

1000 : (206.0...214.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.00
Speed rpm : 1090...1105
2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 13.00
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.90...6.50
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 14.00...14.20
3rd speed rpm : 800
Rack travel in m: 14.10...14.30

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.70...13.90

Measurement

Speed 1/min : 600

1st pressure hPa : 250
Rack travel in m: 9.90...10.10
2nd pressure hPa : 550
Rack travel in m: 12.50...12.70
3rd pressure hPa : 1100
Rack travel in m: 13.80...14.00 *
4th pressure hPa : -
Rack travel in m: 9.20...9.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500

Speed rpm : 1050
Del.quantity cm³/ 1000 s: 216.0...219.0
cm³ : (213.0...222.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm³/ 1000 s: 219.0...223.0
cm³ : (216.0...226.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 122.0...124.0
cm³ : (119.0...127.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 210.0...230.0
cm³ : (206.0...234.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11.1 b 2
 Edition : 29.11.91
 Replaces : 8.10.91
 Test oil : ISO-4113

Combination no. : 0 402 646 956

Injection pump
 Pump designation : PE6P120A320LS7837-1
 EP type number : 0 412 626 858
 Governor
 Governor design. : RQV350...1050PA842-9
 Governer no. : 0 421 813 955

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.05)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 16.50...14.70

Del.quantity cm³/ : 3.4...23.6
 100 s: (23.1...23.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 5.1...5.7
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 350
travel mm		: 0.70...1.30
2nd speed	rpm	: 470
travel mm		: 2.60...3.10
3rd speed	rpm	: 940
travel mm		: 5.20...5.70
4th speed	rpm	: 1106
travel mm		: 6.70...7.20
5th speed	rpm	: 1263
travel mm		: 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1185

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure hPa : 1000
 Del.quantity : 234.0...236.0
 1000 : (231.0...239.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 111...119

Testing:

1st rack travel in: 13.50
 Speed rpm : 1090...1100
 2nd rack travel in: 4.00
 Speed rpm : 1180...1210
 4th rack travel in: 1300
 Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
 position degrees: 63...71

Testing:

Speed rpm : 200
 Minimum rack trave: 7.30
 Speed rpm : 350
 Rack travel in mm : 5.10...5.70

CONSTANT REGULATION

Speed rpm : 350...600

TORQUE CONTROL

Dimension a mm : 0.60
 2nd speed rpm : 1050
 Rack travel in m: 14.50...14.70
 3rd speed rpm : 950
 Rack travel in m: 14.80...15.00
 4th speed rpm : 800
 Rack travel in m: 15.10...15.30

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : 1000
 Rack travel mm : 14.50...14.70

Measurement
 Speed 1/min : 600

1st pressure hPa : 200
 Rack travel in m: 9.60...9.80
 2nd pressure hPa : 600

Rack travel in m: 13.30...13.50
 3rd pressure hPa : 1250
 Rack travel in m: 14.60...14.80 *
 4th pressure hPa : 1400
 Rack travel in m: 15.10...15.30
 5th pressure hPa : -
 Rack travel in m: 8.70...8.90

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1800
 Speed rpm : 1050
 Del.quantity cm³/ : 234.0...237.0
 1000 s: (231.0...240.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1800
 Speed rpm : 800
 Del.quantity cm³/ : 247.0...251.0
 1000 s: (244.0...254.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ : 135.0...137.0
 1000 s: (132.0...140.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 13.50
 Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ : 250.0...270.0
 1000 s: (246.0...274.0)

Remarks:

* Increase in control-rod travel with
 respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9,6 o 7
 Edition : 23.10.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 961

Injection pump
 Pump designation : PE6P120A320LS7834-1
 EP type number : 0 412 626 857
 Governor
 Governor design. : RQV350...950PA866-14
 Governer no. : 0 421 813 959

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 213.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.55)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.30...14.50

Del.quantity cm³/ : 20.9...21.1

100 s: (20.6...21.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...6.2

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 350
travel mm		: 1.30...1.80
2nd speed	rpm	: 424
travel mm		: 2.30...2.80
3rd speed	rpm	: 700
travel mm		: 4.10...4.60
4th speed	rpm	: 1008
travel mm		: 7.90...8.40
5th speed	rpm	: 1220
travel mm		: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 985

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 900
Del.quantity : 209.0...211.0
1000 : (206.0...214.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:

1st rack travel in: 13.80
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 63...71

Testing:

Speed rpm : 200
Minimum rack trave: 7.30
Speed rpm : 350
Rack travel in mm : 5.10...5.70

CONSTANT REGULATION

Speed rpm : 350...600

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.30...13.50

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 9.80...10.00
2nd pressure hPa : 550
Rack travel in m: 12.30...12.50
3rd pressure hPa : 1300
Rack travel in m: 13.70...13.90
4th pressure hPa : -
Rack travel in m: 9.40...9.70

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 950
Del.quantity cm³/ : 228.0...231.0
1000 s: (225.0...234.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 800
Del.quantity cm³/ : 230.0...234.0
1000 s: (227.0...237.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 123.0...125.0
1000 s: (120.0...128.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.80
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 L3
 Edition : 22.11.91
 Replaces : 27.9.91
 Test oil : ISO-4113
 Combination no. : 0 402 646 963
 Injection pump
 Pump designation : PE6P120A320RS7218Y
 EP type number : 0 412 626 859
 Governor
 Governor design. : RQ250/1000PA936-1
 Governor no. : 0 421 801 508
 Customer-spec. information
 Customer : DAF
 Engine : WS 242 G
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 105
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test Lines : 1 680 750 089
 Outside diameter x Wall thickness x Length mm : 8.00x2.50x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 25...27
 Prestroke mm : 5.30...5.40
 : (5.25...5.45)
 Rack travel in mm : 13.70...14.70

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 14.5...15.5
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 14.20...14.30

Del.quantity cm³/ : 21.1...21.3

100 s: (20.8...21.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...7.0

Del.quantity cm³/ : 2.4...3.0

100 s: (2.1...3.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.80...17.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 211.0...213.0

1000 : (208.0...216.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.4

Testing:

1st rack travel in: 13.20
Speed rpm : 1035...1050
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack trave: 6.50
Speed rpm : 250
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 310...350

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 15.30...15.40
2nd speed rpm : 1000
Rack travel in m: 15.20...15.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.20...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 12.40...12.60
2nd pressure hPa : 480
Rack travel in m: 13.80...13.90
3rd pressure hPa : 330
Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del. quantity cm³/ 1000 s: 159.0...161.0
(156.0...164.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.20
Speed rpm : 1035...1050

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.90...5.10

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11.7 L7
 Edition : 22.11.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 963

Injection pump
 Pump designation : PE6P120A320RS7218Y
 EP type number : 0 412 626 859
 Governor
 Governor design. : RQ250/1000PA936-1
 Governor no. : 0 421 801 508

Cust. part no. : T3

Customer-spec. information
 Customer : DAF

Engine : WS 242 G

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.30...5.40
 : (5.25...5.45)
 Rack travel in mm : 13.70...14.70
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 14.20...14.30

Del.quantity cm³/

100 s: (21.0...21.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...7.0

Del.quantity cm³/

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.80...17.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 213.0...215.0

1000 : (210.0...218.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.4

Testing:

1st rack travel in: 13.20

Speed rpm : 1035...1050
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack trave: 6.50
Speed rpm : 250
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 310...350

TORQUE CONTROL
Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 15.30...15.40
2nd speed rpm : 1000
Rack travel in m: 15.20...15.40

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.20...14.30

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 12.40...12.60
2nd pressure hPa : 480
Rack travel in m: 13.80...13.90
3rd pressure hPa : 330
Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ 1000 s: 167.0...169.0
1000 s: (164.0...172.0)

1mm rack travel less than
full load rack tr: 13.20
Speed rpm : 1035...1050

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.90...5.10

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BREAKAWAY

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11.7 L4
 Edition : 22.11.91
 Replaces : 27.9.91
 Test oil : ISO-4113

Combination no. : 0 402 646 964

Injection pump

Pump designation : PE6P120A320RS7218Y
 EP type number : 0 412 626 859
 Governor
 Governor design. : RQV250...1000PA939
 Governer no. : 0 421 813 829

Customer-spec. information

Customer : DAF

Engine : WS 242 G

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.30...5.40
 : (5.25...5.45)
 Rack travel in mm : 13.70...14.70

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 14.5...15.5
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 14.20...14.30

Del.quantity cm³/ : 21.1...21.3

100 s: (20.8...21.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...7.0

Del.quantity cm³/ : 2.4...3.0

100 s: (2.1...3.3)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045

travel mm : 7.80...8.00

2nd speed rpm : 250

travel mm : 0.70...1.10

3rd speed rpm : 400

travel mm : 2.50...3.10

4th speed rpm : 700

travel mm : 4.50...4.90

5th speed rpm : 1350

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 850
Aneroid pressure h: 1000
Del.quantity : 211.0...213.0
1000 : (208.0...216.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:

1st rack travel in: 13.20
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 77...85

Testing:

Speed rpm : 100
Minimum rack trave: 6.50
Speed rpm : 250
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 270...380

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.20...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 12.40...12.60
2nd pressure hPa : 480
Rack travel in m: 13.80...13.90
3rd pressure hPa : 330
Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -

Speed rpm : 600
Del.quantity cm³/ 1000 s: 159.0...161.0
1000 s: (156.0...164.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.20
Speed rpm : 1040...1050

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.90...5.10

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11.7 18
 Edition : 22.11.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 964

Injection pump
 Pump designation : PE6P120A320RS7218Y
 EP type number : 0 412 626 859
 Governor
 Governor design. : RQV250...1000PA939
 Governer no. : 0 421 813 829

Cust. part no. : T3

Customer-spec. information
 Customer : DAF

Engine : WS 242 G

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.30...5.40
 : (5.25...5.45)
 Rack travel in mm : 13.70...14.70
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 14.5...15.5
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 14.20...14.30

Del.quantity cm³/ : 21.3...21.5

100 s: (21.0...21.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...7.0

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045

travel mm : 7.80...8.00

2nd speed rpm : 250

travel mm : 0.70...1.10

3rd speed rpm : 400

travel mm : 2.50...3.10

4th speed rpm : 700

travel mm : 4.50...4.90

5th speed rpm : 1350

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850
Aneroid pressure h: 1000
Del.quantity : 213.0...215.0
1000 : (210.0...218.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 117...125

Testing:

1st rack travel in: 13.20
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 77...85

Testing:

Speed rpm : 100
Minimum rack trave: 6.50
Speed rpm : 250
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 270...380

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.20...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 12.40...12.60
2nd pressure hPa : 480
Rack travel in m: 13.80...13.90
3rd pressure hPa : 330
Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ 1000 s: 167.0...169.0
(164.0...172.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.20
Speed rpm : 1040...1050

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.90...5.10

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 a40
 Edition : 24.04.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : D 402 648 817
 Injection pump
 Pump designation : PE8P120A320LS7801
 EP type number : 0 412 628 806
 Governor
 Governor design. : RQ300/1050PA762-5
 Governor no. : 0 421 801 399
 Cust. part no. : T3
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM442 A
 1st version kW : 260.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 100...120
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8-7-2-6-3-5-
 4-1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 14.00...14.20

Del.quantity cm³/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0
 Rack travel in mm : 6.0...6.4
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)

Spread cm³ : 0.5
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500

Aneroid pressure h: 650

Del.quantity : 201.0...203.0

1000 : (198.0...206.0)

Spread cm³ : 4.00

1000 : (7.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.00...6.40
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.75
2nd speed rpm : 1050
Rack travel in m: 12.70...12.90
3rd speed rpm : 850
Rack travel in m: 13.70...14.00
4th speed rpm : 700
Rack travel in m: 14.40...14.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 14.00...14.20

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 12.30...12.50
2nd pressure hPa : 400
Rack travel in m: 13.30...13.60
3rd pressure hPa : 850
Rack travel in m: 14.10...14.20 *
4th pressure hPa : -
Rack travel in m: 11.40...11.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1050
Speed rpm : 1050
Del.quantity cm³/ 1000 s: 180.0...183.0
Spread cm³ : 7.00
1000 s: (177.0...186.0)
Aneroid pressure h: 1050
Speed rpm : 700
Del.quantity cm³/ 1000 s: (212.0...222.0)
Spread cm³ : 7.00
1000 s: (10.0)
Aneroid pressure h: 1050
Speed rpm : 850
Del.quantity cm³/ 1000 s: (206.0...210.0)
Spread cm³ : 7.00
1000 s: (203.0...213.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 149.0...151.0
Spread cm³ : 7.00
1000 s: (146.0...154.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 175.0...190.0
1000 s: (171.0...194.0)

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 e 2
 Edition : 22.11.91
 Replaces : 31.7.90
 Test oil : ISO-4113

Combination no. : 0 402 648 831

Injection pump
 Pump designation : PE8P120A320LS7801-1
 EP type number : 0 412 628 818
 Governor
 Governor design. : RQV350...1050PA842-7
 Governor no. : 0 421 813 874

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 320.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm	: 5.20...5.30
	: (5.15...5.35)
Rack travel in mm	: 20.00...21.00
Firing order	: 8- 7- 2- 6- 3- 5- 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.50...14.70

Del.quantity cm³/ : 21.2...21.4
 100 s: (20.9...21.7)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 5.7...5.9
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 350
	travel mm	: 0.80...1.20
2nd speed	rpm	: 510
	travel mm	: 3.60...4.10
3rd speed	rpm	: 1100
	travel mm	: 7.80...8.40
4th speed	rpm	: 1270
	travel mm	: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1125
 Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
 Aneroid pressure hPa : 750
 Del.quantity : 212.0...214.0
 1000 : (209.0...217.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 64...72

Testing:

1st rack travel in: 14.20
 Speed rpm : 1090...1100
 2nd rack travel in: 4.00
 Speed rpm : 1160...1190
 4th rack travel in: 1300
 Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
 position degrees: 8...16

Testing:

Speed rpm : 100
 Minimum rack travel: 7.40
 Speed rpm : 350
 Rack travel in mm : 5.50...6.10

CONSTANT REGULATION

Speed rpm : 350...550

TORQUE CONTROL

Dimension a mm : 0.40
 2nd speed rpm : 1050
 Rack travel in m: 15.20...15.40
 3rd speed rpm : 975
 Rack travel in m: 15.60...15.80

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : 750
 Rack travel mm : 14.50...14.70

Measurement
 Speed 1/min : 600

1st pressure hPa : 400
 Rack travel in m: 12.20...12.40
 2nd pressure hPa : 550
 Rack travel in m: 13.60...13.80
 3rd pressure hPa : 900
 Rack travel in m: 14.70...14.80

4th pressure hPa : 1250
 Rack travel in m: 15.50...15.70
 5th pressure hPa : -
 Rack travel in m: 11.60...11.80

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure hPa : 1250
 Speed rpm : 1050
 Del.quantity cm³/ : 221.0...224.0
 1000 s: (218.0...227.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure hPa : 1250
 Speed rpm : 900
 Del.quantity cm³/ : 233.0...237.0
 1000 s: (230.0...240.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure hPa : 1250
 Speed rpm : 1050
 Del.quantity cm³/ : 154.0...157.0 *
 1000 s: (151.0...160.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure hPa : -
 Speed rpm : 500
 Del.quantity cm³/ : 147.0...149.0
 1000 s: (144.0...152.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 14.20
 Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ : 240.0...260.0
 1000 s: (236.0...264.0)

Remarks:

:

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 e 3
 Edition : 22.11.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 831

Injection pump
 Pump designation : PE8P120A320LS7801-1
 EP type number : 0 412 628 818
 Governor
 Governor design. : RQV350...1050PA842-7
 Governor no. : 0 421 813 874

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 320.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow quantity min. 1/h: 100...120

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.50...14.70

Del.quantity cm³/ : 21.2...21.4

100 s: (20.9...21.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 0.80...1.20

2nd speed rpm : 510

travel mm : 3.60...4.10

3rd speed rpm : 1100

travel mm : 7.80...8.40

4th speed rpm : 1270

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
 Aneroid pressure h: 750
 Del.quantity : 212.0...214.0
 1000 : (209.0...217.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 64...72

Testing:
 1st rack travel in: 14.20
 Speed rpm : 1090...1100
 2nd rack travel in: 4.00
 Speed rpm : 1160...1190
 4th rack travel in: 1300
 Speed rpm : 0.00...1.50

LOW IDLE 1
 Control lever
 position degrees: 8...16

Testing:
 Speed rpm : 100
 Minimum rack trave: 7.40
 Speed rpm : 350
 Rack travel in mm : 5.50...6.10

CONSTANT REGULATION
 Speed rpm : 350...550

TORQUE CONTROL
 Dimension a mm : 0.40
 2nd speed rpm : 1050
 Rack travel in m: 15.20...15.40
 3rd speed rpm : 975
 Rack travel in m: 15.60...15.80

Aneroid/Altitude
 Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : 750
 Rack travel mm : 14.50...14.70

Measurement
 Speed 1/min : 600

1st pressure hPa : 400
 Rack travel in m: 12.20...12.40
 2nd pressure hPa : 550
 Rack travel in m: 13.60...13.80
 3rd pressure hPa : 900
 Rack travel in m: 14.70...14.80

4th pressure hPa : 1250
 Rack travel in m: 15.50...15.70
 5th pressure hPa : -
 Rack travel in m: 11.40...11.70

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1250
 Speed rpm : 1050
 Del.quantity cm³/ s: 227.0...230.0
 1000 s: (224.0...233.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1250
 Speed rpm : 900
 Del.quantity cm³/ s: 238.0...242.0
 1000 s: (235.0...245.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1250
 Speed rpm : 1050
 Del.quantity cm³/ s: 156.0...159.0 *
 1000 s: (153.0...162.0)
 Spread cm³ : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ s: 150.0...152.0
 1000 s: (147.0...155.0)
 Spread cm³ : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 14.20
 Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ s: 240.0...260.0
 1000 s: (236.0...264.0)

Remarks:
 :

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 14,2 o
 Edition : 22.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 648 891
 Injection pump
 Pump designation : PE8P120A920/4LS7189Q
 EP type number : 0 412 628 858
 Governor
 Governor design. : RQV200...950PA736-8
 Governer no. : 0 421 813 815
 Customer-spec. information
 Customer : SCANIA
 Engine : DSC14 08

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 104
 Opening pressure, bar : 250...253
 Orifice plate diameter mm : 0,7
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 7- 3- 4- 5-
 6- 8

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 12.30...12.40
 Del.quantity cm³/ : 21.9...22.1
 100 s: (21.6...22.4)

Spread cm³ : 0.7
 100 s: (1.0)

2nd speed rpm : 250.0
 Rack travel in mm : 4.4...4.8
 Del.quantity cm³/ : 1.2...1.6
 100 s: (-)
 Spread cm³ : 0.3
 100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	:	250
travel mm		:	1.40...1.80
2nd speed	rpm	:	350
travel mm		:	2.30...2.90
3rd speed	rpm	:	650
travel mm		:	4.40...5.00
4th speed	rpm	:	995
travel mm		:	7.70...7.90
5th speed	rpm	:	1115
travel mm		:	9.20...9.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1150
 Rack travel in mm : 7.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 900
 Del.quantity : 219.0...221.0
 1000 : (216.0...224.0)

Spread cm³ : 7.00
1000 : (10.00)

Del.quantity cm³/ : 142.0...146.0
1000 s: (140.0...148.0)

RATED SPEED

1st version
Control lever
position degrees: 90...98

Testing:
1st rack travel in: 11.30
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1250
Speed rpm : 0.00...1.00

BREAKAWAY
1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...180.0
1000 s: (-)
Rack travel in mm : 9.80...10.20

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.40...4.60

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

LOW IDLE 1
Control lever
position degrees: 40...48

Testing:
Speed rpm : 100
Minimum rack trave: 6.00
Speed rpm : 250
Rack travel in mm : 4.40...4.60
Rack travel in mm : 2.00
Speed rpm : 375...435

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.30...12.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.20
2nd pressure hPa : 525
Rack travel in m: 11.70...11.80
3rd pressure hPa : 320
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 950
Del.quantity cm³/ : 202.0...210.0
1000 s: (200.0...212.0)
Aneroid pressure h: -
Speed rpm : 500

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 v
 Edition : 23.10.91
 Replaces : 21.8.91
 Test oil : ISO-4113

Combination no. : 0 402 648 902

Injection pump
 Pump designation : PE8P120A320LS7839
 EP type number : 0 412 628 849
 Governor
 Governor design. : RQ300/1050PA972-5
 Governor no. : 0 421 801 564

CUSTOMER-SPEC. INFORMATION
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.10...15.30

Del.quantity cm³/ : 25.6...25.8

100 s: (25.3...26.1)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1050

Del.quantity : 256.0...258.0

1000 : (253.0...261.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 15.20

Speed rpm : 1090...1105

2nd rack travel in: 4.00

Speed rpm : 1160...1190

4th rack travel in: 1250

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.5

Testing:

Speed rpm : 200

Minimum rack trave: 7.80

Speed rpm : 300

Rack travel in mm : 6.20...6.80

Rack travel in mm : 2.00

Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?

2nd speed rpm : 1050

Rack travel in m: 16.20...16.40

3rd speed rpm : 800

Rack travel in m: 16.30...16.50

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 1050

Rack travel mm : 14.60...14.80

Measurement

Speed 1/min : 600

1st pressure hPa : 350

Rack travel in m: 9.70...9.90

2nd pressure hPa : 800

Rack travel in m: 13.70...13.90

3rd pressure hPa : 1300

Rack travel in m: 14.80...15.00

4th pressure hPa : 1600

Rack travel in m: 15.40...15.60

5th pressure hPa : -

Rack travel in m: 9.30...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1900

Speed rpm : 1050

Del.quantity cm³/ : 271.0...274.0

1000 s: (268.0...277.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: 1900

Speed rpm : 800

Del.quantity cm³/ : 276.0...280.0

1000 s: (273.0...283.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 136.0...138.0

1000 s: (133.0...141.0)

Spread cm³ : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 15.20

Speed rpm : 1090...1105

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 a39
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 648 903

Injection pump
 Pump designation : PE8P120A320LS7801-1
 EP type number : 0 412 628 818
 Governor
 Governor design. : RQV350...1050PA866
 -12
 Governor no. : 0 421 813 947

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM442 A
 1st version kW : 260.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 13.90...14.10

Del.quantity cm³/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.0...5.5

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 350
	travel mm	: 1.30...1.80
2nd speed	rpm	: 570
	travel mm	: 3.30...3.80
3rd speed	rpm	: 900
	travel mm	: 5.40...5.90
4th speed	rpm	: 1107
	travel mm	: 7.80...8.30
5th speed	rpm	: 1204
	travel mm	: 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1
 Speed rpm : 1130
 Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500
Aneroid pressure h: 650
Del.quantity : 201.0...203.0
1000 : (198.0...206.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 117...125

Testing:

1st rack travel in: 11.50
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 65...73

Testing:

Speed rpm : 250
Minimum rack trave: 7.60
Speed rpm : 350
Rack travel in mm : 5.00...5.50

CONSTANT REGULATION

Speed rpm : 350...550

TORQUE CONTROL

Dimension a mm : 1.60
2nd speed rpm : 1050
Rack travel in m: 12.50...12.70
3rd speed rpm : 700
Rack travel in m: 14.10...14.30

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 12.20...12.40
2nd pressure hPa : 375

Rack travel in m: 13.30...13.50

3rd pressure hPa : 900

Rack travel in m: 14.00...14.20

4th pressure hPa : -

Rack travel in m: 10.90...11.20

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 1050
Del.quantity cm³/ : 180.0...183.0
1000 s: (177.0...186.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1100
Speed rpm : 700
Del.quantity cm³/ : 213.0...217.0
1000 s: (210.0...220.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 147.0...149.0
1000 s: (144.0...152.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...200.0
1000 s: (176.0...204.0)

Remarks:

:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 w
 Edition : 29.11.91
 Replaces : 26.4.91
 Test oil : ISO-4113

Combination no. : 0 402 648 906

Injection pump
 Pump designation : PE8P120A320LS7838
 EP type number : 0 412 628 848
 Governor
 Governor design. : RQ300/1050PA972-6
 Governor no. : 0 421 801 569

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 320.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del.quantity cm³/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 229.0...231.0

1000 : (226.0...234.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.50
Speed rpm : 1090...1105
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 200
Minimum rack trave: 7.80
Speed rpm : 300
Rack travel in mm : 6.20...6.80

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : ?
2nd speed rpm : 1050
Rack travel in m: 14.50...14.70
3rd speed rpm : 800
Rack travel in m: 15.00...15.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 10.00...10.20
2nd pressure hPa : 700
Rack travel in m: 13.00...13.20
3rd pressure hPa : 1200
Rack travel in m: 14.30...14.50
4th pressure hPa : 1350
Rack travel in m: 14.70...14.90
5th pressure hPa : -
Rack travel in m: 9.20...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600

Speed rpm : 1050
Del.quantity cm³/ 1000 s: 226.0...229.0
Spread cm³ : 8.00
1000 s: (223.0...232.0)
Aneroid pressure h: 1600
Speed rpm : 800
Del.quantity cm³/ 1000 s: 239.0...243.0
Spread cm³ : 8.00
1000 s: (236.0...246.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 138.0...140.0
Spread cm³ : 8.00
1000 s: (135.0...143.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.50
Speed rpm : 1090...1105

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 v 1
 Edition : 29.11.91
 Replaces : 27.5.91
 Test oil : ISO-4113

Combination no. : 0 402 648 907

Injection pump
 Pump designation : PE8P120A320LS7839
 EP type number : 0 412 628 849
 Governor
 Governor design. : PQV300...950PA797-22
 Governor no. : 0 421 813 909

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values

Insp. values in parentheses

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 . : (4.95...5.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 8-7-2-6-3-5-
 4-1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.10...15.30

Del.quantity cm³/

100 s: (25.3...26.1)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.8

Del.quantity cm³/

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.00...1.50

2nd speed rpm : 617

travel mm : 5.00...5.50

3rd speed rpm : 780

travel mm : 6.10...6.60

4th speed rpm : 1010

travel mm : 8.30...8.80

5th speed rpm : 1092

travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 1050
Del.quantity : 256.0...258.0
1000 : (253.0...261.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:

1st rack travel in: 15.00
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1080...1110
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:

Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.90...6.50

CONSTANT REGULATION

Speed rpm : 300...500

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1050
Rack travel mm : 15.10...15.30

Measurement
Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 10.20...10.40
2nd pressure hPa : 800
Rack travel in m: 13.90...14.10
3rd pressure hPa : 1300
Rack travel in m: 15.30...15.50
4th pressure hPa : 1600
Rack travel in m: 15.90...16.10
5th pressure hPa : -
Rack travel in m: 9.10...9.40

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1900
Speed rpm : 950
Del.quantity cm³/ : 279.0...282.0
1000 s: (276.0...285.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 144.0...146.0
1000 s: (141.0...149.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 15.00
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 275.0...295.0
1000 s: (271.0...299.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 u 2
 Edition : 29.11.91
 Replaces : 30.8.91
 Test oil : ISO-4113

Combination no. : 0 402 648 909

Injection pump
 Pump designation : PE8P120A320LS7840
 EP type number : 0 412 628 850
 Governor
 Governor design. : RQ300/950PA971-6
 Governer no. : 0 421 801 575

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 250.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.50...13.70

Del.quantity cm³/ : 20.9...21.1

100 s: (20.6...21.4)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 7.0...7.4

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del.quantity : 209.0...211.0

1000 : (206.0. 214.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.30

Speed rpm : 990...1005

2nd rack travel in: 4.00

Speed rpm : 1070...1100

4th rack travel in: 1150

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.5

Testing:

Speed rpm : 200

Minimum rack trave: 7.60

Speed rpm : 300

Rack travel in mm : 6.20...6.80

Rack travel in mm : 2.00

Speed rpm : 380...420

TORQUE CONTROL

2nd speed rpm : 950

Rack travel in m: 13.30...13.50

3rd speed rpm : 800

Rack travel in m: 13.90...14.10

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 900

Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 345

Rack travel in m: 11.60...11.80

2nd pressure hPa : 600

Rack travel in m: 13.00...13.20

3rd pressure hPa : 1050

Rack travel in m: 13.70...13.90 *

4th pressure hPa : 1250

Rack travel in m: 14.00...14.20

5th pressure hPa : -

Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

Speed rpm : 950

Del.quantity cm³/ : 204.0...207.0
1000 s: (201.0...210.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: 1500

Speed rpm : 800

Del.quantity cm³/ : 220.0...224.0

1000 s: (217.0...227.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 127.0...129.0

1000 s: (124.0...132.0)

Spread cm³ : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.30

Speed rpm : 990...1005

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 u 3
 Edition : 29.11.91
 Replaces : 18.9.91
 Test oil : ISO-4113
 Combination no. : 0 402 648 910
 Injection pump
 Pump designation : PE8P120A320LS7840
 EP type number : 0 412 628 850
 Governor
 Governor design. : RQV300...950PA797-26
 Governer no. : 0 421 813 915
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM442 A
 1st version kW : 250.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow quantity min. 1/h: 100...120
 Test nozzle holder assembly : 1 688 901 105
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test Lines : 1 680 750 075
 Outside diameter x Wall thickness x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.50...13.70

Del.quantity cm³/ : 20.6...20.8

100 s: (20.3...21.1)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.9...7.5
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 300
travel mm		: 1.00...1.50
2nd speed	rpm	: 617
travel mm		: 5.00...5.50
3rd speed	rpm	: 780
travel mm		: 6.10...6.60
4th speed	rpm	: 1009
travel mm		: 8.30...8.80
5th speed	rpm	: 1092
travel mm		: 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 900
Del.quantity : 206.0...208.0
1000 : (203.0...211.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 118...126

Testing:

1st rack travel in: 12.40
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:

Speed rpm : 200
Minimum rack trave: 8.50
Speed rpm : 300
Rack travel in mm : 6.90...7.50

CONSTANT REGULATION

Speed rpm : 300...450

TORQUE CONTROL

2nd speed rpm : 950
Rack travel in m: 13.40...13.60
3rd speed rpm : 800
Rack travel in m: 14.00...14.20

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.50...13.70

Measurement

Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 11.30...11.50
2nd pressure hPa : 650
Rack travel in m: 12.80...13.00
3rd pressure hPa : 1050

Rack travel in m: 13.60...13.70 *

4th pressure hPa : 1250

Rack travel in m: 13.90...14.10

5th pressure hPa : -

Rack travel in m: 10.70...11.00

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 950
Del.quantity cm³/ : 204.0...207.0
1000 s: (201.0...210.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm³/ : 220.0...224.0
1000 s: (217.0...227.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 123.0...125.0
1000 s: (120.0...128.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 210.0...230.0
1000 s: (206.0...234.0)

Remarks:

:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 y
 Edition : 29.11.91
 Replaces : 21.8.91
 Test oil : ISO-4113
 Combination no. : 0 402 648 920

Injection pump
 Pump designation : PE8P120A320LS7844
 EP type number : 0 412 628 860
 Governor
 Governor design. : RQV350...1050PA870
 -16
 Governor no. : 0 421 813 953

Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM442 LA
 1st version kW : 370.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 100...120
 Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm	: 5.00...5.10
	: (4.95...5.15)
Rack travel in mm	: 20.00...21.00
Firing order	: 8- 7- 2- 6- 3- 5- 4- 1

Phasing	: 0-45-90-135-180-225- 270-315
Tolerance + - °	: 0.50 (0.75)
Time to cyl. no.	: 8

BASIC SETTING

1st speed	rpm : 600
Rack travel in mm	: 14.40...14.60
Del.quantity cm ³ /	: 25.2...25.4
100 s:	(24.9...25.7)
Spread	cm ³ : 0.5
100 s:	(0.9)

2nd speed	rpm : 350.0
Rack travel in mm	: 4.8...5.4
Del.quantity cm ³ /	: 1.6...2.2
100 s:	(1.3...2.5)
Spread	cm ³ : 0.6
100 s:	(1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm : 350
travel mm	: 1.30...1.80
2nd speed	rpm : 570
travel mm	: 3.30...3.80
3rd speed	rpm : 900
travel mm	: 5.40...5.90
4th speed	rpm : 1108
travel mm	: 7.80...8.30
5th speed	rpm : 1204
travel mm	: 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position	Degree: -1
Speed	rpm : 1125
Rack travel in mm	: 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600-
Aneroid pressure h: 1000
Del.quantity : 252.0...254.0
1000 : (249.0...257.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 115...123

Testing:

1st rack travel in: 14.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 63...71

Testing:

Speed rpm : 250
Minimum rack trave: 6.60
Speed rpm : 350
Rack travel in mm : 5.00...5.60

CONSTANT REGULATION

Speed rpm : 350...550

TORQUE CONTROL

Dimension a mm : 0.80
2nd speed rpm : 1050
Rack travel in m: 15.40...15.60
3rd speed rpm : 800
Rack travel in m: 16.20...16.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.40...14.60

Measurement

Speed 1/min : 600

1st pressure hPa : 290
Rack travel in m: 9.10...9.30
2nd pressure hPa : 780

Rack travel in m: 13.50...13.70
3rd pressure hPa : 1200
Rack travel in m: 14.50...14.70 *
4th pressure hPa : -
Rack travel in m: 8.80...9.10

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1900
Speed rpm : 1050
Del.quantity cm³/ : 274.0...277.0
1000 s: (271.0...280.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1900
Speed rpm : 800
Del.quantity cm³/ : 295.0...299.0
1000 s: (292.0...302.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 139.0...141.0
1000 s: (136.0...144.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 14.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 280.0...300.0
1000 s: (276.0...304.0)

Remarks:

:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 v 5
 Edition : 23.10.91
 Replaces : 30.8.91
 Test oil : ISO-4113

Combination no. : 0 402 648 921

Injection pump
 Pump designation : PE8P120A320LS7839
 EP type number : 0 412 628 849
 Governor
 Governor design. : RQ300/950PA993-8
 Governor no. : 0 421 801 618

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow quantity min. 1/h: 100...120

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.00...15.20

Del.quantity cm³/ : 25.6...25.8

100 s: (25.3...26.1)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.6

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1050

Del.quantity : 256.0...258.0

1000 : (253.0...261.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 15.40
Speed rpm : 990...1005
2nd rack travel in: 4.00
Speed rpm : 1075...1105
4th rack travel in: 1150
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.3

Testing:

Speed rpm : 200
Minimum rack trave: 7.60
Speed rpm : 300
Rack travel in mm : 6.00...6.60
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1050
Rack travel mm : 15.00...15.20

Measurement

Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 10.00...10.20
2nd pressure hPa : 800
Rack travel in m: 13.80...14.00
3rd pressure hPa : 1300
Rack travel in m: 15.20...15.40
4th pressure hPa : 1600
Rack travel in m: 15.80...16.00
5th pressure hPa : -
Rack travel in m: 9.30...9.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 2100
Speed rpm : 950
Del.quantity cm3/ : 279.0...282.0
1000 s: (276.0...285.0)

Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 2100
Speed rpm : 800
Del.quantity cm3/ : 286.0...290.0
1000 s: (283.0...293.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 136.0...138.0
1000 s: (133.0...141.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 15.40
Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...280.0
1000 s: (256.0...284.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,8 p
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 922

Injection pump
 Pump designation : PE8P120A320LS7845
 EP type number : 0 412 628 861
 Governor
 Governor design. : RQV350...1050PA866
 -15
 Governer no. : 0 421 813 960

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM402 A

1st version kW : 280.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.30...14.50

Del.quantity cm3/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 4.8...5.4

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 350
	travel mm	: 1.30...1.80
2nd speed	rpm	: 570
	travel mm	: 3.30...3.80
3rd speed	rpm	: 900
	travel mm	: 5.40...5.90
4th speed	rpm	: 1107
	travel mm	: 7.80...8.30
5th speed	rpm	: 1204
	travel mm	: 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 900
Del.quantity : 225.0...227.0
1000 : (222.0...230.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 118...126

Testing:

1st rack travel in: 12.80
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 62...70

Testing:

Speed rpm : 200
Minimum rack trave: 7.40
Speed rpm : 350
Rack travel in mm : 4.80...5.40

CONSTANT REGULATION

Speed rpm : 350...550

TORQUE CONTROL

Dimension a mm : 0.20
2nd speed rpm : 1050
Rack travel in m: 13.80...14.00
3rd speed rpm : 800
Rack travel in m: 14.40...14.60

Aneroid/Altitude

Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 14.30...14.50

Measurement

Speed 1/min : 600

1st pressure hPa : 250
Rack travel in m: 9.80...10.00
2nd pressure hPa : 600

Rack travel in m: 13.00...13.20

3rd pressure hPa : 1100

Rack travel in m: 14.40...14.50 *

4th pressure hPa : -

Rack travel in m: 9.00...9.30

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050
Del.quantity cm³/ : 214.0...217.0
1000 s: (211.0...220.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm³/ : 232.0...236.0
1000 s: (229.0...239.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 122.0...124.0
1000 s: (119.0...127.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 230.0...250.0
1000 s: (226.0...254.0)

Remarks:

:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 z
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 648 923

Injection pump
 Pump designation : PE8P120A320LS7840-1
 EP type number : 0 412 628 862
 Governor
 Governor design. : RQV350...1050PA866
 -16
 Governor no. : 0 421 813 961

Customer-spec. information

Customer : MERCEDES-BENZ
 Engine : OM442 A

1st version kW : 250.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm	: 5.20...5.30
	: (5.15...5.35)
Rack travel in mm	: 20.00...21.00
Firing order	: 8- 7- 2- 6- 3- 5- 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.70...13.90

Del.quantity cm³/ : 20.8...21.0

100 s: (20.5...21.3)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.8

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 350
travel mm		: 1.30...1.80
2nd speed	rpm	: 454
travel mm		: 2.80...3.30
3rd speed	rpm	: 900
travel mm		: 5.40...5.90
4th speed	rpm	: 1107
travel mm		: 7.80...8.30
5th speed	rpm	: 1204
travel mm		: 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 800
Del.quantity : 208.0...210.0
1000 : (205.0...213.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 118...126

Testing:

1st rack travel in: 12.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:

Speed rpm : 250
Minimum rack trave: 7.60
Speed rpm : 350
Rack travel in mm : 6.20...6.80

CONSTANT REGULATION

Speed rpm : 350...500

TORQUE CONTROL

Dimension a mm : 1.40
2nd speed rpm : 1050
Rack travel in m: 13.20...13.40
3rd speed rpm : 800
Rack travel in m: 14.60...14.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.70...13.90

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.40...11.60
2nd pressure hPa : 550

Rack travel in m: 12.50...12.70
3rd pressure hPa : 1050
Rack travel in m: 13.80...13.90 *
4th pressure hPa : 1150
Rack travel in m: 14.20...14.50
5th pressure hPa : -
Rack travel in m: 10.80...11.10

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 1050
Del.quantity cm³/ : 194.0...197.0
1000 s: (191.0...200.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 800
Del.quantity cm³/ : 236.0...240.0
1000 s: (233.0...243.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 123.0...125.0
1000 s: (120.0...128.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 195.0...215.0
1000 s: (191.0...219.0)

Remarks:

:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 e 1
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 648 924

Injection pump
 Pump designation : PE8P120A320LS7840-1
 EP type number : 0 412 628 862
 Governor
 Governor design. : RQV350...950PA866-17
 Governor no. : 0 421 813 962

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 250.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 8-7-2-6-3-5-
 4-1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.40...13.60

Del.quantity cm³/ : 20.8...21.0

100 s: (20.5...21.3)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 5.5...6.1
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 350
travel mm		: 1.30...1.80
2nd speed	rpm	: 424
travel mm		: 2.30...2.80
3rd speed	rpm	: 700
travel mm		: 4.10...4.60
4th speed	rpm	: 1008
travel mm		: 7.80...8.30
5th speed	rpm	: 1220
travel mm		: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 800
Del.quantity : 208.0...210.0
1000 : (205.0...213.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:
1st rack travel in: 11.80
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 82...90

Testing:
Speed rpm : 200
Minimum rack trave: 7.10
Speed rpm : 350
Rack travel in mm : 5.50...6.10

CONSTANT REGULATION
Speed rpm : 350...550

TORQUE CONTROL
Dimension a mm : 1.50
2nd speed rpm : 950
Rack travel in m: 12.80...13.00
3rd speed rpm : 800
Rack travel in m: 14.30...14.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.40...13.60

Measurement
Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.10...11.30
2nd pressure hPa : 550
Rack travel in m: 12.20...12.40

3rd pressure hPa : 1050
Rack travel in m: 13.50...13.60 *
4th pressure hPa : 1150
Rack travel in m: 13.90...14.20
5th pressure hPa : -
Rack travel in m: 10.50...10.80

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1400
Speed rpm : 950
Del.quantity cm³/ : 194.0...197.0
1000 s: (191.0...200.0)
Spread cm³ : 8.00
1000 s: (12.)
Aneroid pressure h: 1400
Speed rpm : 800
Del.quantity cm³/ : 236.0...240.0
1000 s: (233.0...243.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 123.0...125.0
1000 s: (120.0...128.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 195.0...215.0
1000 s: (191.0...219.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 g
 Edition : 29.11.91
 Replaces : 19.6.90
 Test oil : ISO-4113

Combination no. : 0 402 678 802

Injection pump
 Pump designation : PE8P120A320LS7801-1
 EP type number : 0 412 628 818
 Governor
 Governor design. : RSV650...1050POA826
 Governer no. : 0 421 833 253

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442A

1st version kW : 234.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1080

Rack travel in mm : 11.60...11.70

Del.quantity cm³/ : 16.3...16.5

100 s: (16.0...16.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 650.0

Rack travel in mm : 4.1...4.3

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080

Del.quantity : 163.0...165.0

1000 : (160.0...168.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 34...42

Testing:

1st rack travel in: 10.60
Speed rpm : 1110...1120
2nd rack travel in: 4.00
Speed rpm : 1135...1150
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 4.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 650
Rack travel in mm : 4.10...4.30
Rack travel in mm : 2.00
Speed rpm : 650...710

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1080
Rack travel in m: 11.60...11.70
2nd speed rpm : 900
Rack travel in m: 13.20...13.40
3rd speed rpm : 1000
Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900
Del.quantity cm³/ : 201.0...206.0
1000 s: (198.0...209.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 1110...1120

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 200.0...220.0
1000 s: (196.0...224.0)

Remarks:

:
Engine-speed difference between 1 mm
regulated and control-rod travel 4 mm =
25...35 1/min.

In order to adjust and test the EP com-
bination, set full-load speed regul.
at 1110...1120 1/min. Then set speed
regul. to 1060...1070 1/min again.

APPLICATION

Observe VDT-I-420/120

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 g15
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 0 402 678 802

 Injection pump
 Pump designation : PE8P120A320LS7801-1
 EP type number : 0 412 628 818
 Governor
 Governor design. : RSV650...1050POA826
 Governer no. : 0 421 833 253

 Cust. part no. : T3

 Customer-spec. information
 Customer : MERCEDES-BENZ

 Engine : OM442A

 1st version kW : 234.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 025

 Inlet press., bar : 1.50

 Overflow
 quantity min. 1/h: 100...120

 Test nozzle holder
 assembly : 1 688 901 019

 Opening
 pressure, bar : 207...210

 Orifice plate
 diameter mm : 0,8

 Test lines : 1 680 750 067

 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 8-7-2- 6- 3- 5-
 4-1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1080

Rack travel in mm : 11.60...11.70

Del.quantity cm³/ : 16.3...16.5

100 s: (16.0...16.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 650.0
 Rack travel in mm : 4.1...4.3
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1080
 Del.quantity : 163.0...165.0
 1000 : (160.0...168.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 34...42

Testing:

1st rack travel in: 10.60

Speed rpm : 1110...1120

2nd rack travel in: 4.00

Speed rpm : 1135...1150

4th rack travel in: 1400

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 650

Rack travel in mm : 4.2

Testing:

Speed rpm : 100

Minimum rack travel: 19.50

Speed rpm : 650

Rack travel in mm : 4.10...4.30

Rack travel in mm : 2.00

Speed rpm : 650...710

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1080

Rack travel in m: 11.60...11.70

2nd speed rpm : 900

Rack travel in m: 13.20...13.40

3rd speed rpm : 1000

Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900

Del.quantity cm³/ : 206.0...210.0

1000 s: (203.0...213.0)

Spread cm³ : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60

Speed rpm : 1110...1120

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 200.0...220.0

1000 s: (196.0...224.0)

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.

In order to adjust and test the EP combination, set full-load speed regul. at 1110...1120 1/min. Then set speed regul. to 1060...1070 1/min again.

APPLICATION

Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 5,9 w
 Edition : 22.11.91
 Replaces : 18.9.91
 Test oil : ISO-4113

Combination no. : 0 402 736 806

Injection pump
 Pump designation : PES6P110A120RS7213
 EP type number : 0 412 716 804
 Governor
 Governor design. : RQV400...1250PA964K
 Governor no. : 0 421 815 252

Customer-spec. information
 Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 171.5
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 15.80...15.90

Del.quantity cm³/ : 16.8...17.0
 100 s: (16.5...17.3)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 400.0
 Rack travel in mm : 5.7...5.9
 Del.quantity cm³/ : 3.2...3.8
 100 s: (3.0...4.0)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 400
travel mm		: 1.60...1.80
2nd speed	rpm	: 600
travel mm		: 2.80...3.30
3rd speed	rpm	: 1300
travel mm		: 7.20...7.40
4th speed	rpm	: 1500
travel mm		: 8.90...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1250
Aneroid pressure h:		1500
Del.quantity		: 168.5...170.5
1000		: (165.5...173.5)
Spread	cm ³	: 5.00
1000		: (9.00)

RATED SPEED

1st version

Control lever

position degrees: 59...67

Testing:

1st rack travel in: 14.80
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1475...1505
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 13...21

Testing:

Speed rpm : 275
Minimum rack trave: 7.20
Speed rpm : 400
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 15.80...15.90
2nd speed rpm : 825
Rack travel in m: 14.70...14.90
3rd speed rpm : 700
Rack travel in m: 14.00...14.40

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 1250
Pressure hPa : 1500
Rack travel mm : 15.80...15.90

Measurement

Speed 1/min : 1250

1st pressure hPa : -

Rack travel in m: 8.10...8.50

2nd pressure hPa : 375

Rack travel in m: 10.00...10.10

3rd pressure hPa : 935

Rack travel in m: 13.70...14.10

START CUT-OUT

Speed 1/min : 300 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 825
Del.quantity cm³/ 1000 s: 178.0...184.0
1000 s: (175.0...187.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 87.0...91.0
1000 s: (85.0...93.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 14.80
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 12.40...13.40

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ 1000 s: 32.0...38.0
1000 s: (30.0...40.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: C.D.C. # 3913440

Start-of-delivery mark 6° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r
 Edition : 22.11.91
 Replaces : 21.8.91
 Test oil : ISO-4113

Combination no. : 0 402 736 807

Injection pump
 Pump designation : PES6P110A120RS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RQV350...1100PA964-1
 K
 Governer no. : 0 421 815 253

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 201.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 15.70...15.80

Del.quantity cm³/ : 20.6...20.8

100 s: (20.3...21.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 2.7...3.3

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.80...2.00

2nd speed rpm : 450

travel mm : 3.10...3.50

3rd speed rpm : 600

travel mm : 5.10...5.50

4th speed rpm : 1000

travel mm : 8.10...8.30

5th speed rpm : 1200

travel mm : 9.60...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1500

Del.quantity : 206.0...208.0

1000 : (203.0...211.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 64...72

Testing:
1st rack travel in: 14.40
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 14.00
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 11...19

Testing:
Speed rpm : 275
Minimum rack trave: 7.20
Speed rpm : 350
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 15.70...15.80
2nd speed rpm : 650
Rack travel in m: 13.20...13.60
3rd speed rpm : 1100
Rack travel in m: 15.40...15.60

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1050
Pressure hPa : 1500
Rack travel mm : 15.70...15.80

Measurement
Speed 1/min : 1050
1st pressure hPa : -
Rack travel in m: 8.40...8.80
2nd pressure hPa : 340
Rack travel in m: 10.20...10.30
3rd pressure hPa : 840
Rack travel in m: 13.60...14.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 650
Del.quantity cm³/ : 187.5...193.5
1000 s: (184.5...196.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 98.0...102.0
1000 s: (96.0...104.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.40
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 11.00...12.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 27.0...33.0
1000 s: (25.0...35.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : C.D.C. # 3916627

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:
Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 5,9 w 1
 Edition : 22.11.91
 Replaces : 18.9.91
 Test oil : ISO-4113

 Combination no. : 0 402 736 810

 Injection pump
 Pump designation : PES6P110A120RS7213
 EP type number : 0 412 716 804
 Governor
 Governor design. : RQV400...1250PA964-2
 K
 Governor no. : 0 421 815 254

 Customer-spec. information
 Customer : C.D.C.

 Engine : 6BTA-A

 1st version kW : 141.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 047

 Inlet press., bar : 1.50

 Overflow
 quantity min. 1/h: 115...125

 Test nozzle holder
 assembly : 1 688 901 101

 Opening
 pressure, bar : 207...210

 Orifice plate
 diameter mm : 0,6

 Test lines : 1 680 750 008

 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 14.80...14.90

Del.quantity cm³/ : 15.9...16.1

100 s: (15.6...16.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 3.2...3.8

100 s: (3.0...4.0)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 400
travel mm		: 1.60...1.80
2nd speed	rpm	: 600
travel mm		: 2.80...3.30
3rd speed	rpm	: 1300
travel mm		: 7.20...7.40
4th speed	rpm	: 1500
travel mm		: 8.90...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1200

Del.quantity : 159.0...161.0

1000 : (156.0...164.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 59...67

Testing:

1st rack travel in: 13.80

Speed rpm : 1295...1305

2nd rack travel in: 4.00

Speed rpm : 1460...1490

4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 11...19

Testing:

Speed rpm : 275

Minimum rack trave: 7.20

Speed rpm : 400

Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 14.80...14.90

2nd speed rpm : 800

Rack travel in m: 13.10...13.30

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 1250

Pressure hPa : 1200

Rack travel mm : 14.80...14.90

Measurement

Speed 1/min : 1250

1st pressure hPa : -

Rack travel in m: 8.30...8.70

2nd pressure hPa : 365

Rack travel in m: 10.20...10.30

3rd pressure hPa : 690

Rack travel in m: 13.20...13.60

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 800

Del.quantity cm³/ 1000 s: 158.0...164.0

1000 s: (155.0...167.0)

Spread cm³ : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ 1000 s: 95.5...99.5

1000 s: (93.5...101.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80

Speed rpm : 1295...1305

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ 1000 s: 135.0...175.0

1000 s: (130.0...180.0)

Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.40...5.60

Del.quantity cm³/ 1000 s: 32.0...38.0

1000 s: (30.0...40.0)

Spread cm³ : 8.00

1000 s: (12.00)

Remarks:

: C.D.C. # 3919090

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 5,9 W 2
 Edition : 22.11.91
 Replaces : 18.9.91
 Test oil : ISO-4113

Combination no. : 0 402 736 811

Injection pump
 Pump designation : PES6P110A120RS7213
 EP type number : 0 412 716 804
 Governor
 Governor design. : RQV400...1250PA964-3
 K
 Governor no. : 0 421 815 255

Customer-spec. information
 Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 147.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 14.80...14.90

Del.quantity cm³/ : 15.8...16.0

100 s: (15.5...16.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 3.2...3.8

100 s: (3.0...4.0)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400

travel mm : 1.60...1.80

2nd speed rpm : 600

travel mm : 2.80...3.30

3rd speed rpm : 1300

travel mm : 7.20...7.40

4th speed rpm : 1500

travel mm : 8.90...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1200

Del.quantity : 158.5...160.5

1000 : (155.5...163.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 56...64

Testing:

1st rack travel in: 13.80
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1460...1490
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20

Testing:

Speed rpm : 275
Minimum rack trave: 7.20
Speed rpm : 400
Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

1st speed rpm : 1250
Rack travel in m: 14.80...14.90
2nd speed rpm : 800
Rack travel in m: 13.20...13.40

Aneroid/Altitude

Compensator Test

1st version

Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 14.80...14.90

Measurement

Speed 1/min : 1250

1st pressure hPa : -

Rack travel in m: 8.20...8.60
2nd pressure hPa : 410
Rack travel in m: 10.00...10.10
3rd pressure hPa : 755
Rack travel in m: 13.20...13.60

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ : 156.5...162.5
1000 s: (153.5...165.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 90.0...94.0
1000 s: (88.0...96.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.80
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 11.90...12.90

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 32.0...38.0
1000 s: (30.0...40.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: C.D.C. # 3918321

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r 6
 Edition : 22.11.91
 Replaces : 18.9.91
 Test oil : ISO-4113

Combination no. : 0 402 736 812

Injection pump
 Pump designation : PES6P110A120RS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RQV350...1200PA964-4
 K
 Governer no. : 0 421 815 256

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 156.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 12.60...12.70

Del.quantity cm³/ : 14.7...14.9

100 s: (14.4...15.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 2.7...3.3

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.80...2.00

2nd speed rpm : 450

travel mm : 3.10...3.50

3rd speed rpm : 700

travel mm : 5.90...6.30

4th speed rpm : 1200

travel mm : 9.00...9.20

5th speed rpm : 1400

travel mm : 10.70...11.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1200

Del.quantity : 147.5...149.5

1000 : (144.5...152.5)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:

1st rack travel in: 11.60
Speed rpm : 1245...1255
2nd rack travel in: 4.00
Speed rpm : 1375...1405
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 275
Minimum rack trave: 7.20
Speed rpm : 350
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 12.60...12.70
2nd speed rpm : 650
Rack travel in m: 11.20...11.60
3rd speed rpm : 550
Rack travel in m: 11.10...11.50

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1200
Pressure hPa : 1200
Rack travel mm : 12.60...12.70

Measurement
Speed 1/min : 1200

1st pressure hPa : -
Rack travel in m: 8.00...8.40
2nd pressure hPa : 225
Rack travel in m: 9.20...9.30
3rd pressure hPa : 515
Rack travel in m: 11.10...11.50

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ 1000 s: 151.0...157.0
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 90.0...94.0
1000 s: (88.0...96.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 135.0...175.0
Rack travel in mm : 11.00...12.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ 1000 s: 27.0...33.0
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : C.D.C. # 3917088

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:
Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r 4
 Edition : 22.11.91
 Replaces : 18.9.91
 Test oil : ISO-4113

Combination no. : 0 402 736 813

Injection pump
 Pump designation : PES6P110A120RS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RQV350...1100PA964-5
 K
 Governer no. : 0 421 815 257

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 187.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.50...14.60

Del.quantity cm³/ : 18.6...18.8

100 s: (18.3...19.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 2.7...3.3

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.80...2.00

2nd speed rpm : 450

travel mm : 3.10...3.50

3rd speed rpm : 600

travel mm : 5.10...5.50

4th speed rpm : 1000

travel mm : 8.10...8.30

5th speed rpm : 1200

travel mm : 9.60...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del.quantity : 186.5...188.5

1000 : (183.5...191.5)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control Lever
position degrees: 62...70

Testing:

1st rack travel in: 13.50
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1290...1320
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 275
Minimum rack trave: 7.20
Speed rpm : 350
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 14.50...14.60
2nd speed rpm : 650
Rack travel in m: 13.50...13.70
3rd speed rpm : 500
Rack travel in m: 12.90...13.30

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1100
Pressure hPa : 1200
Rack travel mm : 14.50...14.60

Measurement

Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 8.30...8.70
2nd pressure hPa : 285
Rack travel in m: 9.70...9.80
3rd pressure hPa : 700
Rack travel in m: 12.60...13.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 198.0...204.0
 1000 s: (195.0...207.0)
Spread cm³ : 8.00
 1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 98.0...102.0
 1000 s: (96.0...104.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.50
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
 1000 s: (130.0...180.0)
Rack travel in mm : 10.80...11.80

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 27.0...33.0
 1000 s: (25.0...35.0)
Spread cm³ : 8.00
 1000 s: (12.00)

Remarks: : C.D.C. # 3916628

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:
Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r 1
 Edition : 22.11.91
 Replaces : 18.9.91
 Test oil : ISO-4113
 Combination no. : 0 402 736 814
 Injection pump
 Pump designation : PES6P110A120RS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RQV350...1200PA964-6
 Governer no. : 0 421 815 258
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6CTA-A
 1st version kW : 187.0
 Rated speed : 2400
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 115...125
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test Lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 14.50...14.60

Del.quantity cm³/ : 18.3...18.5

100 s: (18.0...18.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 2.7...3.3

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 350
	travel mm	: 1.80...2.00
2nd speed	rpm	: 450
	travel mm	: 3.10...3.50
3rd speed	rpm	: 700
	travel mm	: 5.90...6.30
4th speed	rpm	: 1200
	travel mm	: 9.00...9.20
5th speed	rpm	: 1400
	travel mm	: 10.70...11.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 1200
Aneroid pressure h:	1200	
Del.quantity		: 183.0...185.0
1000		: (180.0...188.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:
1st rack travel in: 13.50
Speed rpm : 1245...1255
2nd rack travel in: 4.00
Speed rpm : 1405...1435
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 11...19

Testing:
Speed rpm : 275
Minimum rack trave: 7.20
Speed rpm : 350
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 14.50...14.60
2nd speed rpm : 650
Rack travel in m: 11.40...11.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1200
Pressure hPa : 1200
Rack travel mm : 14.50...14.60

Measurement
Speed 1/min : 1200

1st pressure hPa : -
Rack travel in m: 7.70...8.10
2nd pressure hPa : 270
Rack travel in m: 9.50...9.60
3rd pressure hPa : 700
Rack travel in m: 12.60...13.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ s: 165.5...171.5
1000 s: (162.5...174.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ s: 90.0...94.0
1000 s: (88.0...96.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.50
Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ s: 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 10.70...11.70

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ s: 27.0...33.0
1000 s: (25.0...35.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : C.D.C. # 3917089

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:
Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r 5
 Edition : 22.11.91
 Replaces : 21.8.91
 Test oil : ISO-4113

Combination no. : 0 402 736 815

Injection pump
 Pump designation : PES6P110A120RS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RQV350...1000PA964-7
 K
 Governor no. : 0 421 815 259

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 194.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 15.80...15.90

Del.quantity cm³/ : 21.7...21.9

100 s: (21.4...22.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 2.7...3.3

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.60...1.80

2nd speed rpm : 450

travel mm : 3.00...3.40

3rd speed rpm : 600

travel mm : 5.20...5.60

4th speed rpm : 1000

travel mm : 8.40...8.60

5th speed rpm : 1150

travel mm : 9.80...10.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 1500

Del.quantity : 217.0...219.0

1000 : (214.0...222.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:

1st rack travel in: 14.30
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1205...1235
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 275
Minimum rack trave: 7.20
Speed rpm : 350
Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 15.80...15.90
2nd speed rpm : 650
Rack travel in m: 14.00...14.40
3rd speed rpm : 1000
Rack travel in m: 15.30...15.50

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 900
Pressure hPa : 1500
Rack travel mm : 15.80...15.90

Measurement

Speed 1/min : 900

1st pressure hPa : -
Rack travel in m: 8.30...8.70
2nd pressure hPa : 340
Rack travel in m: 10.20...10.30
3rd pressure hPa : 840
Rack travel in m: 13.60...14.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 650
Del.quantity cm³/ : 211.0...217.0
 1000 s: (208.0...220.0)
Spread cm³ : 8.00
 1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 98.0...102.0
 1000 s: (96.0...104.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.30
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
 1000 s: (130.0...180.0)
Rack travel in mm : 10.90...11.90

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 27.0...33.0
 1000 s: (25.0...35.0)
Spread cm³ : 8.00
 1000 s: (12.00)

Remarks: : C.D.C. # 3916629

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:
Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r 2
 Edition : 22.11.91
 Replaces : 18.9.91
 Test oil : ISO-4113

 Combination no. : 0 402 736 816

 Injection pump
 Pump designation : PES6P110A120RS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RQV350...1200PA964-8
 K
 Governer no. : 0 421 815 264

 Customer-spec. information
 Customer : C.D.C.

 Engine : 6CTA-A

 1st version kW : 213.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 047

 Inlet press., bar : 1.50

 Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

 Opening
 pressure, bar : 207...210

 Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.70...14.80

Del.quantity cm³/ : 19.0...19.2

100 s: (18.7...19.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 2.7...3.3

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 350
travel mm		: 1.80...2.00
2nd speed	rpm	: 450
travel mm		: 3.10...3.50
3rd speed	rpm	: 700
travel mm		: 5.90...6.30
4th speed	rpm	: 1200
travel mm		: 9.00...9.20
5th speed	rpm	: 1400
travel mm		: 10.70...11.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del.quantity : 190.0...192.0

1000 : (187.0...195.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:

1st rack travel in: 13.20
Speed rpm : 1245...1255
2nd rack travel in: 4.00
Speed rpm : 1400...1430
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 275
Minimum rack trave: 7.20
Speed rpm : 350
Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 14.70...14.80
2nd speed rpm : 650
Rack travel in m: 12.60...13.00
3rd speed rpm : 1200
Rack travel in m: 14.20...14.40

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1100
Pressure hPa : 1200
Rack travel mm : 14.70...14.80

Measurement
Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 7.80...8.20
2nd pressure hPa : 335
Rack travel in m: 9.60...9.70
3rd pressure hPa : 785
Rack travel in m: 12.80...13.20

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 181.0...187.0
1000 s: (178.0...190.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 90.0...94.0
1000 s: (88.0...96.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.20
Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 10.70...11.70

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 27.0...33.0
1000 s: (25.0...35.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : C.D.C. # 3916626

Start-of-delivery mark 6° cam angle
after start of delivery cyl. 1

Bow dimension:
Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11/9 t5
 Edition : 29.11.91
 Replaces : 26.7.91
 Test oil : ISO-4113

Combination no. : 0 402 736 820

Injection pump
 Pump designation : PES6P120A720/3LS7209
 EP type number : 0 412 726 837
 Governor
 Governor design. : RQV300...1000PA960-5
 Governer no. : 0 421 815 286

Customer-spec. information
 Customer : MAN

Engine : D2866LU04

1st version kW : 309.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90
 : (4.75...4.95)
 Rack travel in mm : 15.00...16.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 13.50...13.60

Del.quantity cm³/ : 29.4...29.6

100 s: (29.1...29.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.6

Del.quantity cm³/ : 3.3...3.9

100 s: (3.0...4.2)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1045
travel mm		: 9.80...10.00
2nd speed	rpm	: 300
travel mm		: 1.50...1.70
3rd speed	rpm	: 500
travel mm		: 3.20...3.80
4th speed	rpm	: 900
travel mm		: 8.10...8.50
5th speed	rpm	: 1350
travel mm		: 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1075
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 750

Aneroid pressure h: 1300
Del.quantity : 294.0...296.0
1000 : (291.0...299.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 295...303

Testing:
1st rack travel in: 12.80
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 249...257

Testing:
Speed rpm : 100
Minimum rack trave: 6.90
Speed rpm : 300
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION
Speed rpm : 300...420

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 13.50...13.60
2nd speed rpm : 900
Rack travel in m: 13.80...14.00
3rd speed rpm : 1000
Rack travel in m: 13.80...14.00
4th speed rpm : 600
Rack travel in m: 12.60...12.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1000
Pressure hPa : 1300
Rack travel mm : 13.80...14.00

Measurement
Speed 1/min : 1000

1st pressure hPa : -
Rack travel in m: 9.10...9.30

2nd pressure hPa : 200
Rack travel in m: 9.40...9.50
3rd pressure hPa : 565
Rack travel in m: 11.40...11.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1300
Speed rpm : 1000
Del.quantity cm³/ : 285.0...291.0
1000 s: (282.0...294.0)
Aneroid pressure h: 1300
Speed rpm : 600
Del.quantity cm³/ : 282.0...286.0
1000 s: (279.0...289.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 169.0...171.0
1000 s: (166.0...174.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 195.0...235.0
1000 s: (191.0...239.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.20...5.60
Del.quantity cm³/ : 33.0...39.0
1000 s: (30.0...42.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : MAN-NR. 3-7130

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 6
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 k 1
 Edition : 04.12.91
 Replaces : 30.8.91
 Test oil : ISO-4113
 Combination no. : 0 402 746 863
 Injection pump
 Pump designation : PES6P120A720RS7179
 EP type number : 0 412 726 826
 Governor
 Governor design. : RQV350...1150PA917K
 Governer no. : 0 421 815 214
 Customer-spec. information
 Customer : FNH
 Engine : 7.8L
 1st version kW : 201.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 072
 Overflow
 quantity min. 1/h: 160...170
 Test nozzle holder
 assembly : 1 688 901 103

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,7

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 17...19

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed	rpm	: 1150
Rack travel in mm		: 14.00...14.10
Del.quantity cm ³ /		: 21.7...21.9
100 s:		(21.4...22.2)
Spread	cm ³	: 0.7
100 s:		(1.1)

2nd speed	rpm	: 350.0
Rack travel in mm		: 5.0...5.4
Del.quantity cm ³ /		: 2.0...2.6
100 s:		(1.8...2.8)
Spread	cm ³	: 0.5
100 s:		(0.9)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1215
travel mm		: 9.40...9.60
2nd speed	rpm	: 350
travel mm		: 2.20...2.40
3rd speed	rpm	: 450
travel mm		: 3.40...4.00
4th speed	rpm	: 800
travel mm		: 6.10...6.50
5th speed	rpm	: 1550
travel mm		: 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position	Degree:	-1
Speed	rpm	: 1380
Rack travel in mm		: 6.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version		
Speed	rpm	: 1150

Aneroid pressure h: 1400
Del.quantity : 217.0...219.0
1000 : (214.0...222.0)
Spread cm³ : 7.00
1000 : (11.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 13.00
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1345...1375
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 64...72

Testing:

Speed rpm : 100
Minimum rack trave: 6.70
Speed rpm : 350
Rack travel in mm : 5.00...5.40

CONSTANT REGULATION

Speed rpm : 320...440

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 14.00...14.10
2nd speed rpm : 750
Rack travel in m: 12.40...12.60
3rd speed rpm : 550
Rack travel in m: 11.30...11.70

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1150
Pressure hPa : 1400
Rack travel mm : 14.00...14.10

Measurement
Speed 1/min : 1150

1st pressure hPa : -
Rack travel in m: 7.90...8.30
2nd pressure hPa : 300
Rack travel in m: 9.50...9.60

3rd pressure hPa : 850
Rack travel in m: 12.40...12.80

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1400
Speed rpm : 750
Del.quantity cm³/ s: 212.0...218.0
1000 s: (209.0...221.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ s: 110.0...114.0
1000 s: (108.0...116.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ s: 150.0...180.0
1000 s: (145.0...185.0)
Rack travel in mm : 10.90...11.50

Remarks:
:

Bow dimension:
Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11.8 L1
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 898

Injection pump
 Pump designation : PES6P120A320RS7215
 EP type number : 0 412 726 838
 Governor
 Governor design. : RQV250...1000PA967
 Governer no. : 0 421 813 876

Customer-spec. information

Customer : ENASA

Engine : 96 R1 FX

1st version kW : 294.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.30...13.40

Del.quantity cm³/

100 s: (29.3...30.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.7...6.1

Del.quantity cm³/

100 s: (0.7...1.9)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 350
 travel mm : 2.10...2.60

3rd speed rpm : 700
 travel mm : 4.70...5.30

4th speed rpm : 1055
 travel mm : 7.90...8.10

5th speed rpm : 1145
 travel mm : 9.00...9.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1070

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1200

Del.quantity : 296.0...298.0
1000 : (293.0...301.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 119...127

Testing:

1st rack travel in: 12.30
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 73...81

Testing:

Speed rpm : 100
Minimum rack trave: 5.00
Speed rpm : 250
Rack travel in mm : 3.30...3.70

CONSTANT REGULATION

Speed rpm : 250...320

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.30...13.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.30...8.70
2nd pressure hPa : 770
Rack travel in m: 12.20...12.30
3rd pressure hPa : 330
Rack travel in m: 9.80...10.00

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

H₂O

Aneroid pressure h: 1200
Speed rpm : 900
Del.quantity cm³/ s: 288.0...294.0
1000 s: (285.0...297.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ s: 146.0...149.0
1000 s: (143.0...152.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.30
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ s: 135.0...155.0
1000 s: (131.0...159.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.30...3.70

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 9,8 n
 Edition : 29.11.91
 Replaces : 24.4.91
 Test oil : ISO-4113

Combination no. : 0 402 746 907

Injection pump
 Pump designation : PES6P120A320RS7231
 EP type number : 0 412 726 844
 Governor
 Governor design. : RQV275...1000PA927-1
 Governor no. : 0 421 813 923

Customer-spec. information

Customer : RVI

Engine : MIDR 06-20-45

1st version kW : 249.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.65...4.75
 : (4.60...4.80)
 Rack travel in mm : 13.50...14.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.00

Del.quantity cm³/

100 s: (24.0...24.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 4.7...5.1

Del.quantity cm³/

100 s: (2.5...3.7)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1060
travel mm		: 8.10...8.30
2nd speed	rpm	: 275
travel mm		: 1.10...1.50
3rd speed	rpm	: 500
travel mm		: 3.60...4.20
4th speed	rpm	: 750
travel mm		: 5.70...6.10
5th speed	rpm	: 1400
travel mm		: 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 243.0...245.0

1000 : (240.0...248.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 297...305

Testing:

1st rack travel in: 12.90
Speed rpm : 1055...1065
2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 242...250

Testing:

Speed rpm : 200
Minimum rack trave: 6.10
Speed rpm : 275
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

Speed rpm : 310...430

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 13.90...14.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.50
2nd pressure hPa : 520
Rack travel in m: 12.70...12.80
3rd pressure hPa : 240
Rack travel in m: 9.90...10.30

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1000

Del.quantity cm³/ : 239.0...245.0
 1000 s: (236.0...248.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 125.0...127.0
 1000 s: (122.0...130.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.90
Speed rpm : 1055...1065

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...165.0
 1000 s: (131.0...169.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.70...5.10
Del.quantity cm³/ : 28.0...34.0
 1000 s: (25.0...37.0)
Spread cm³ : 8.00
 1000 s: (12.00)

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 12,0 m
 Edition : 22.11.91
 Replaces : 18.6.91
 Test oil : ISO-4113

Combination no. : 0 402 746 911

Injection pump
 Pump designation : PES6P120A720RS7239
 EP type number : 0 412 726 850
 Governor
 Governor design. : RQV325...900PA944-13
 K
 Governer no. : 0 421 815 284

Customer-spec. information
 Customer : MACK TRUCKS

Engine : E7-350 ITC

1st version kW : 261.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Overflow
 quantity min. 1/h: 160...170

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.80...12.90

Del.quantity cm³/ : 23.1...23.3

100 s: (22.8...23.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0
 Rack travel in mm : 5.0...5.2
 Del.quantity cm³/ : 4.6...5.2
 100 s: (4.4...5.4)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 325
travel mm		: 1.20...1.40
2nd speed	rpm	: 450
travel mm		: 2.80...3.20
3rd speed	rpm	: 650
travel mm		: 5.60...5.80
4th speed	rpm	: 900
travel mm		: 8.30...8.50
5th speed	rpm	: 1100
travel mm		: 10.30...10.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 900
Aneroid pressure h:		1200
Del.quantity		: 231.5...233.5
1000		: (228.5...236.5)
Spread	cm ³	: 5.00
1000		: (9.00)

RATED SPEED

1st version

Control lever

position degrees: 58...66

Testing:

1st rack travel in: 11.80
Speed rpm : 940...990
2nd rack travel in: 4.00
Speed rpm : 1090...1100
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 8...16

Testing:

Speed rpm : 275
Minimum rack trave: 6.20
Speed rpm : 325
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

1st speed rpm : 900
Rack travel in m: 12.80...12.90
2nd speed rpm : 625
Rack travel in m: 12.70...13.00
3rd speed rpm : 550
Rack travel in m: 11.80...12.20

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 625
Pressure hPa : 1200
Rack travel mm : 12.70...13.00

Measurement

Speed 1/min : 625

1st pressure hPa : -

Rack travel in m: 7.40...7.80

2nd pressure hPa : 365

Rack travel in m: 8.90...9.00

3rd pressure hPa : 665

Rack travel in m: 11.30...11.70

START CUT-OUT

Speed 1/min : 250 (255)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 625
Del.quantity cm³/ 1000 s: 266.5...272.5
1000 s: (263.5...275.5)
Spread cm³ : 8.00
1000 s: (12.0)
Speed rpm : 875
Del.quantity cm³/ 1000 s: 199.0...201.0 *
1000 s: (180.5...207.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm³/ 1000 s: 147.5...151.5
1000 s: (145.5...153.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 940...990

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 210.0...240.0
1000 s: (205.0...245.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 5.00...5.20
Del.quantity cm³/ 1000 s: 46.5...52.5
1000 s: (44.5...54.5)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MACK # 313GC5203-P8

Bow dimension:

Sliding-sleeve position = 37.0 mm

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 12,0 m1
 Edition : 22.11.91
 Replaces : 18.6.91
 Test oil : ISO-4113

Combination no. : 0 402 746 912

Injection pump
 Pump designation : PES6P120A720RS7239
 EP type number : 0 412 726 850
 Governor
 Governor design. : RQV325...875PA944-14
 K
 Governer no. : 0 421 815 285

Customer-spec. information
 Customer : MACK TRUCKS

Engine : EM7-300 ITC

1st version kW : 224.0
 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Overflow
 quantity min. 1/h: 160...170

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 22...24

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 11.00...13.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 875

Rack travel in mm : 11.20...11.30

Del.quantity cm³/ : 21.6...21.8

100 s: (21.3...22.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.4...4.6

Del.quantity cm³/ : 4.6...5.2

100 s: (4.4...5.4)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.70...1.90

2nd speed rpm : 450

travel mm : 4.20...4.60

3rd speed rpm : 650

travel mm : 8.00...8.40

4th speed rpm : 900

travel mm : 10.00...10.20

5th speed rpm : 1000

travel mm : 10.80...11.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h: 1200

Del.quantity : 216.5...218.5

1000 : (213.5...221.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 63...71

Testing:

1st rack travel in: 10.20
Speed rpm : 915...965
2nd rack travel in: 4.00
Speed rpm : 1015...1025
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:

Speed rpm : 275
Minimum rack trave: 6.00
Speed rpm : 325
Rack travel in mm : 4.40...4.60

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 875
Rack travel in m: 11.20...11.30
2nd speed rpm : 510
Rack travel in m: 12.90...13.10
3rd speed rpm : 450
Rack travel in m: 11.80...12.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 510
Pressure hPa : 1200
Rack travel mm : 12.90...13.10

Measurement
Speed 1/min : 510

1st pressure hPa : -
Rack travel in m: 7.10...7.50
2nd pressure hPa : 370
Rack travel in m: 8.70...8.80
3rd pressure hPa : 730
Rack travel in m: 11.50...11.90

START CUT-OUT

Speed 1/min : 250 (255)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 510
Del.quantity cm3/ : 315.5...321.5
1000 s: (312.5...324.5)
Spread cm3 : 8.00
1000 s: (12.0)
Speed rpm : 875
Del.quantity cm3/ : 199.0...201.0
1000 s: (159.5...183.0)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm3/ : 160.0...164.0
1000 s: (158.0...166.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 915...965

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 210.0...240.0
1000 s: (205.0...245.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.40...4.60
Del.quantity cm3/ : 46.0...52.0
1000 s: (44.0...54.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks: : MACK # 3136C5203-P6

Bow dimension:
Sliding-sleeve position = 37.0 mm
* This test specification applies only
to the engine/nozzle-and-holder
assemblies on an injection-pump test
bench: setting for test equipment,
check value for engine equipment.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,8 t
 Edition : 29.11.91
 Replaces : 26.4.91
 Test oil : ISO-4113

Combination no. : 0 402 746 914

Injection pump
 Pump designation : PES6P120A720LS7238
 EP type number : 0 412 726 852
 Governor
 Governor design. : RQ300/1100PA1008
 Governor no. : 0 421 801 591

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 HLA

1st version kW : 220.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.20

Del.quantity cm³/ : 21.3...21.5

100 s: (21.0...21.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 600

Del.quantity : 213.0...215.0

1000 : (210.0...218.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 20.0

Testing:
 1st rack travel in: 13.60
 Speed rpm : 1145...1160
 2nd rack travel in: 4.00
 Speed rpm : 1220...1250
 4th rack travel in: 1300
 Speed rpm : 0.00...1.50

LOW IDLE 1
 Setting point w/out bumper spring
 Speed rpm : 300
 Rack travel in mm : 6.5

Testing:
 Speed rpm : 200
 Minimum rack trave: 8.40
 Speed rpm : 300
 Rack travel in mm : 6.20...6.80
 Rack travel in mm : 2.00
 Speed rpm : 370...410

Aneroid/Altitude
 Compensator Test

1st version
 Setting
 Speed rpm : 600
 Pressure hPa : 600
 Rack travel mm : 14.00...14.20

Measurement
 Speed 1/min : 600
 1st pressure hPa : 250
 Rack travel in m: 12.20...12.40
 2nd pressure hPa : 400
 Rack travel in m: 13.60...13.80
 3rd pressure hPa : 800
 Rack travel in m: 14.20...14.40
 4th pressure hPa : 890
 Rack travel in m: 14.50...14.70
 5th pressure hPa : -
 Rack travel in m: 11.50...11.80

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1400
 Speed rpm : 1100
 Del.quantity cm3/ : 229.0...232.0
 1000 s: (226.0...235.0)
 Spread cm3 : 8.00
 1000 s: (12.0)
 Aneroid pressure h: 1400
 Speed rpm : 800
 Del.quantity cm3/ : 238.0...242.0
 1000 s: (235.0...245.0)

Spread cm3 : 8.00
 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm3/ : 147.0...149.0
 1000 s: (144.0...152.0)
 Spread cm3 : 8.00
 1000 s: (12.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 13.60
 Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
 Rack travel in mm : 11.50...11.80

Remarks:
 :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 6,2 L
 Edition : 29.11.91
 Replaces : 8.10.91
 Test oil : ISO-4113
 Combination no. : 0 402 746 924
 Injection pump
 Pump designation : PES6P110A320RS7243
 EP type number : 0 412 716 806
 Governor
 Governor design. : RQV275...1250PA942-2
 K
 Governer no. : 0 421 815 288
 Customer-spec. information
 Customer : RVI
 Engine : MIDR06-06-26 L/2
 1st version kW : 132.5
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.85...4.95
 : (4.80...5.00)
 Rack travel in mm : 13.00...14.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.70...13.80

Del.quantity cm³/ : 14.0...14.2

100 s: (14.0...14.2)

2nd speed rpm : 275.0

Rack travel in mm : 5.9...6.3

Del.quantity cm³/ : 2.3...2.8

100 s: (2.3...2.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1320
travel mm		: 9.70...9.90
2nd speed	rpm	: 275
travel mm		: 0.90...1.10
3rd speed	rpm	: 600
travel mm		: 4.20...4.60
4th speed	rpm	: 1000
travel mm		: 7.00...7.40
5th speed	rpm	: 1600
travel mm		: 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1470

Rack travel in mm : 8.80...11.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1000

Del.quantity : 140.0...142.0

1000 : (140.0...142.0)

RATED SPEED

1st version
Control lever
position degrees: 276...284

Testing:
1st rack travel in: 12.70
Speed rpm : 1320...1330
2nd rack travel in: 4.00
Speed rpm : 1465...1495
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 219...227

Testing:
Speed rpm : 200
Minimum rack trave: 6.70
Speed rpm : 275
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION
Speed rpm : 350...480

TORQUE CONTROL
Dimension a mm : 1.30
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.70...13.80
2nd speed rpm : 650
Rack travel in m: 12.70...12.90
3rd speed rpm : 300
Rack travel in m: 12.00...12.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1250
Pressure hPa : 1000
Rack travel mm : 13.70...13.80

Measurement
Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 10.80...11.00
2nd pressure hPa : 300
Rack travel in m: 12.00...12.10
3rd pressure hPa : 180
Rack travel in m: 11.20...11.60

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

J02

1st version
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 126.0...130.0
1000 s: (126.0...130.0)
Speed rpm : 650
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 79.0...81.0
1000 s: (79.0...81.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.70
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...120.0
1000 s: (96.0...124.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.90...6.30
Del.quantity cm3/ : 23.0...28.0
1000 s: (23.0...28.0)

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 n
 Edition : 22.11.91
 Replaces : 18.9.91
 Test oil : ISO-4113

Combination no. : 0 402 776 808

Injection pump

Pump designation : PES6P120A720RS7223
 EP type number : 0 412 726 843
 Governor
 Governor design. : RSV400...1050POA547
 Governer no. : 0 421 833 349

Customer-spec. information

Customer : JOHN DEERE

Engine : 6101 HZ010

1st version kW : 241.0

Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 075

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 140...150

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 23.2...23.4
 100 s: (22.9...23.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm³/ : 1.9...2.5
 100 s: (1.7...2.7)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1200

Del.quantity : 232.5...234.5
 1000 : (229.5...237.5)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 39...47

Testing:

1st rack travel in: 11.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1165
3rd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.90...6.10

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.90...13.00
2nd speed rpm : 800
Rack travel in m: 13.20...13.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.20...13.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.80
2nd pressure hPa : 390
Rack travel in m: 11.60...11.70
3rd pressure hPa : 700
Rack travel in m: 12.60...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 800

Del.quantity cm³/ s: 243.0...249.0
1000 s: (240.0...252.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ s: 145.0...149.0
1000 s: (143.0...151.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ s: 85.0...125.0
1000 s: (80.0...130.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ s: 19.5...25.5
1000 s: (17.5...27.5)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Adjustment without torque-control E47014
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 7,1 f
 Edition : 29.11.91
 Replaces : 18.9.91
 Test oil : ISO-4113

Combination no. : 0 402 846 050

Injection pump
 Pump designation : PE6P110A320RS8009
 EP type number : 0 412 816 010
 Governor
 Governor design. : RQV250...1200PA953K
 Governor no. : 0 421 815 996

Customer-spec. information

Customer : VOLVO-TRUCK

Engine : TD73EB

1st version kW : 184.0

Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 064

Inlet press., bar : 2.50

Test nozzle holder assembly : 1 688 901 101

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90
 : (3.75...3.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 19.6...19.8

100 s: (19.4...20.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.7...5.1

Del.quantity cm³/ : 2.1...2.5

100 s: (1.8...2.8)

Spread cm³ : 0.7

100 s: (1.1)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.10...1.50

2nd speed rpm : 400

travel mm : 3.00...3.60

3rd speed rpm : 850

travel mm : 6.70...7.30

4th speed rpm : 1250

travel mm : 10.30...10.50

5th speed rpm : 1350

travel mm : 11.40...11.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1240

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 196.0...198.0
1000 : (194.0...200.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:

1st rack travel in: 11.30
Speed rpm : 1260...1270
2nd rack travel in: 4.00
Speed rpm : 1350...1380
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 69...77

Testing:

Speed rpm : 100
Minimum rack trave: 6.40
Speed rpm : 300
Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

Speed rpm : 300...450

TORQUE CONTROL

Dimension a mm : 1.70
Torque control curve - 1st version
1st speed rpm : 700
Rack travel in m: 12.10...12.20
2nd speed rpm : 1200
Rack travel in m: 12.30...12.50
3rd speed rpm : 850
Rack travel in m: 12.20...12.50
4th speed rpm : 350
Rack travel in m: 10.60...10.90

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1200
Pressure hPa : 1200
Rack travel mm : 12.30...12.50

Measurement
Speed 1/min : 1200

1st pressure hPa : -
Rack travel in m: 7.30...7.50
2nd pressure hPa : 90

Rack travel in m: 7.50...7.60
3rd pressure hPa : 830
Rack travel in m: 11.70...11.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1200
Del.quantity cm³/ : 165.0...169.0
1000 s: (162.0...172.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 99.0...101.0
1000 s: (96.0...104.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1260...1270

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.70...4.90

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 7,1 f 1
 Edition : 29.11.91
 Replaces : 18.9.91
 Test oil : ISO-4113

Combination no. : 0 402 846 051

Injection pump
 Pump designation : PE6P110A320RS8009
 EP type number : 0 412 816 010
 Governor
 Governor design. : RQV250...1200PA953-1
 Governer no. : 0 421 815 995

Customer-spec. information
 Customer : VOLVO-TRUCK

Engine : TD73EA

1st version kW : 158.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 064

Inlet press., bar : 2.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,5

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90
 : (3.75...3.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.20...10.30

Del.quantity cm³/ : 15.9...16.1

100 s: (15.7...16.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.7...5.1

Del.quantity cm³/ : 2.1...2.5

100 s: (1.8...2.8)

Spread cm³ : 0.7

100 s: (1.1)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 250
travel mm		: 1.10...1.50
2nd speed	rpm	: 400
travel mm		: 3.00...3.60
3rd speed	rpm	: 850
travel mm		: 6.70...7.30
4th speed	rpm	: 1250
travel mm		: 10.30...10.50
5th speed	rpm	: 1350
travel mm		: 11.40...11.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1240

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700

Aneroid pressure h: 1200
Del.quantity : 159.0...161.0
1000 : (157.0...163.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:

1st rack travel in: 10.10
Speed rpm : 1260...1270
2nd rack travel in: 4.00
Speed rpm : 1330...1360
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 69...77

Testing:

Speed rpm : 100
Minimum rack trave: 6.40
Speed rpm : 300
Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

Speed rpm : 300...450

TORQUE CONTROL

Dimension a mm : 1.60
Torque control curve - 1st version
1st speed rpm : 700
Rack travel in m: 10.20...10.30
2nd speed rpm : 1200
Rack travel in m: 11.10...11.30
3rd speed rpm : 1100
Rack travel in m: 11.00...11.30
4th speed rpm : 350
Rack travel in m: 9.50...9.80

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1200
Pressure hPa : 1200
Rack travel mm : 11.10...11.30

Measurement
Speed 1/min : 1200

1st pressure hPa : -
Rack travel in m: 7.30...7.50

2nd pressure hPa : 90
Rack travel in m: 7.50...7.60
3rd pressure hPa : 740
Rack travel in m: 11.20...11.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1200
Del.quantity cm³/ : 146.0...150.0
1000 s: (143.0...153.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 99.0...101.0
1000 s: (96.0...104.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1260...1270

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.70...4.90

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 7,1 h
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 846 052

Injection pump
 Pump designation : PE6P110A320RS8009-1
 EP type number : 0 412 816 011
 Governor
 Governor design. : RQV300...1100PA1017
 Governer no. : 0 421 813 965

Customer-spec. information
 Customer : VME

Engine : TD73KBE

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 078

Inlet press., bar : 2.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90
 : (3.75...3.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.00...10.10

Del.quantity cm³/ : 16.4...16.6

100 s: (16.2...16.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.7...5.1

Del.quantity cm³/ : 2.1...2.5

100 s: (1.8...2.8)

Spread cm³ : 0.7

100 s: (1.1)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.90...1.30

2nd speed rpm : 500

travel mm : 3.10...3.70

3rd speed rpm : 800

travel mm : 5.60...6.20

4th speed rpm : 1150

travel mm : 9.10...9.30

5th speed rpm : 1300

travel mm : 11.00...11.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1200

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 164.0...166.0

1000 : (162.0...168.0)

Spread cm ³ : 5.00	1st version 1mm rack travel less than
1000 : (9.00)	full load rack tr: 9.00 Speed rpm : 1140...1150
RATED SPEED	
1st version	LOW IDLE
Control lever	Speed rpm : 300
position degrees: 113...121	Rack travel in mm : 4.70...4.90
Testing:	
1st rack travel in: 9.00	Remarks:
Speed rpm : 1140...1150	:
2nd rack travel in: 4.00	
Speed rpm : 1200...1230	
4th rack travel in: 1320	
Speed rpm : 0.00...1.00	
LOW IDLE 1	
Control lever	
position degrees: 80...88	
Testing:	
Speed rpm : 100	
Minimum rack trave: 6.40	
Speed rpm : 300	
Rack travel in mm : 4.70...4.90	
CONSTANT REGULATION	
Speed rpm : 300...360	
Aneroid/Altitude Compensator Test	
1st version	
Setting	
Speed rpm : 1000	
Pressure hPa : 1200	
Rack travel mm : 10.00...10.10	
Measurement	
Speed 1/min : 1000	
1st pressure hPa : -	
Rack travel in m: 7.70...7.90	
2nd pressure hPa : 90	
Rack travel in m: 7.90...8.00	
FUEL DELIVERY CHARACTERISTICS	
1st version	
Aneroid pressure h: -	
Speed rpm : 700	
Del.quantity cm ³ / : 116.0...118.0	
1000 s: (113.0...121.0)	
BREAKAWAY	

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 G
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 244 030

Injection pump
 Pump designation : PES4MW100/720RS1513
 EP type number : 0 413 204 011
 Governor
 Governor design. : RQV300...1300MW119
 Governer no. : 0 420 083 251

Customer-spec. information
 Customer : MB-NFZ

Engine : OM364LA

1st version kW : 102.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 5.20...5.30
 : (5.15...5.35)

Rack travel in mm : 21.00...0.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.80...12.90

Del.quantity cm³/

100 s: (11.6...12.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 4.2...4.4

Del.quantity cm³/

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h:

1000 Del.quantity : 118.0...120.0

1000 : (116.0...122.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 110...118

Testing:

1st rack travel in: 11.80

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1455...1485

4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.3

Testing:
Speed rpm : 200
Minimum rack trave: 6.00
Speed rpm : 300
Rack travel in mm : 4.20...4.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.00...9.10

Measurement
Speed 1/min : 500

1st pressure hPa : 200
Rack travel in m: 9.70...9.90
2nd pressure hPa : 500
Rack travel in m: 11.80...12.00
3rd pressure hPa : 1000
Rack travel in m: 12.80...12.90

START CUT-OUT

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 112.5...115.5
1000 s: (110.0...118.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 46.0...48.0
1000 s: (44.0...50.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 105.0...115.0
1000 s: (102.0...118.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.20...4.40
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 F
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 246 030
 Injection pump
 Pump designation : PES6M100/720RS1511
 EP type number : 0 413 206 011
 Governor
 Governor design. : RQ300/1300MW105-9
 Governer no. : 0 420 082 061
 Customer-spec. information
 Customer : MB-NFZ
 Engine : OM366LA
 1st version kW : 177.0
 Rated speed : 2600
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 30...32
 Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 21.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 13.0...13.2

100 s: (12.8...13.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 4.2...4.4

Del.quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108

Speed rpm : 1000

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 130.0...132.0

1000 : (128.0...136.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 101...109

Setting point:

Speed rpm : 1000

Rack travel in mm : 15.5

Testing:

1st rack travel in: 12.40

Speed rpm : 1345...1360

2nd rack travel in: 4.00

Speed rpm : 1455...1485

4th rack travel in: 1550
 Speed rpm : 0.00...1.00

LOW IDLE 1
 Control lever
 position degrees: 72...80
 Setting point w/out bumper spring
 Speed rpm : 300
 Rack travel in mm : 4.3

Testing:
 Speed rpm : 200
 Minimum rack trave: 6.00
 Speed rpm : 300
 Rack travel in mm : 4.20...4.40

Aneroid/Altitude Compensator Test

1st version
Setting
 Speed rpm : 500
 Pressure hPa : -
 Rack travel mm : 9.00...9.10

Measurement
 Speed 1/min : 500

1st pressure hPa : 300
 Rack travel in m: 10.00...10.20
 2nd pressure hPa : 600
 Rack travel in m: 12.10...12.30
 3rd pressure hPa : 1000
 Rack travel in m: 13.40...13.50

START CUT-OUT
 Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 1000
 Speed rpm : 750
 Del.quantity cm3/ : 122.5...125.5
 1000 s: (120.0...128.0)
 Spread cm3 : 5.00
 1000 s: (7.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm3/ : 46.0...48.0
 1000 s: (44.0...50.0)

BREAKAWAY
1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PER 5,8 D
 Edition : 23.10.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 444 119

Injection pump
 Pump designation : PES4MW100/320RS1199
 EP type number : 0 413 404 112
 Governor
 Governor design. : RQV300...1300MW110K
 Governer no. : 0 420 083 996

Customer-spec. information
 Customer : PERKINS

Engine : 110 TI

1st version kW : 82.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 101

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.30...3.40
 : (3.25...3.45)
 Rack travel in mm : 12.00...14.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.00...13.10

Del.quantity cm³/ : 12.4...12.6

100 s: (12.2...12.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.3

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1350
	travel mm	: 10.00...10.40
2nd speed	rpm	: 900
	travel mm	: 6.40...6.60
3rd speed	rpm	: 480
	travel mm	: 3.10...3.70
4th speed	rpm	: 300
	travel mm	: 1.40...1.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1380

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 900

Del.quantity : 124.0...126.0

1000 : (122.0...128.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:

1st rack travel in: 12.00
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 6.10...6.30

CONSTANT REGULATION

Speed rpm : 330...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 13.00...13.10
2nd speed rpm : 800
Rack travel in m: 12.00...12.20
3rd speed rpm : 500
Rack travel in m: 10.10...10.30
4th speed rpm : 1000
Rack travel in m: 12.40...12.70
5th speed rpm : 400
Rack travel in m: 9.70...9.90

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.70...8.80

Measurement

Speed 1/min : 500

1st pressure hPa : 130

Rack travel in m: 9.00...9.10
2nd pressure hPa : 180
Rack travel in m: 9.70...10.00
3rd pressure hPa : 900
Rack travel in m: 10.10...10.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 800
Del.quantity cm³/ : 118.0...121.0
1000 s: (115.5...123.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 77.0...79.0
1000 s: (75.0...81.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...100.0
1000 s: (87.0...103.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.10...6.30
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery blocking 46.5°
before start of delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 I 5
 Edition : 29.11.91
 Replaces : 09.91
 Test oil : ISO-4113

Combination no. : 0 403 444 136

Injection pump
 Pump designation : PES4MW100/720RS1212
 EP type number : 0 413 404 114
 Governor
 Governor design. : RQV300...1300MW123-1
 Governer no. : 0 420 083 256

Customer-spec. information
 Customer : MB-NFZ

Engine : OM364LA

1st version kW : 102.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.20...13.30

Del.quantity cm³/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.5...6.7

Del.quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 0.70...1.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 110...118

Testing:
 1st rack travel in: 12.20
 Speed rpm : 1340...1350

2nd rack travel in: 4.00
 Speed rpm : 1460...1490

4th rack travel in: 1550
 Speed rpm : 0.00...1.00

LOW IDLE 1
 Control lever
 position degrees: 72...80
 Setting point w/out bumper spring
 Speed rpm : 300
 Rack travel in mm : 6.6

Testing:
 Speed rpm : 200
 Minimum rack travel: 8.00
 Speed rpm : 300
 Rack travel in mm : 6.50...6.70

CONSTANT REGULATION
 Speed rpm : 320...550

Aneroid/Altitude Compensator Test

1st version
Setting
 Speed rpm : 500
 Pressure hPa : -
 Rack travel mm : 10.20...10.30

Measurement
 Speed 1/min : 500

1st pressure hPa : 200
 Rack travel in m: 10.90...11.10

2nd pressure hPa : 400
 Rack travel in m: 12.30...12.50

3rd pressure hPa : 700
 Rack travel in m: 13.20...13.30

START CUT-OUT
 Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 700
 Speed rpm : 600
 Del.quantity cm3/ : 86.0...89.0
 1000 s: (83.5...91.5)

Spread cm3 : 5.00
 1000 s: (7.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm3/ : 36.0...38.0
 1000 s: (34.0...40.0)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 12.20
 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm3/ : 85.0...95.0
 1000 s: (82.0...98.0)

LOW IDLE

Speed rpm : 300
 Rack travel in mm : 6.50...6.70
 Del.quantity cm3/ : 10.0...14.0
 1000 s: (7.5...16.5)
 Spread cm3 : 3.50
 1000 s: (5.50)

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,7 A 3
 Edition : 23.10.91
 Replaces : 10.90
 Test oil : ISO-4113

 Combination no. : 0 403 446 261

 Injection pump
 Pump designation : PES6MW100/320RS1204
 EP type number : 0 413 406 192
 Governor
 Governor design. : RQV350...1350MW46-32
 Governer no. : 0 420 083 225

 Customer-spec. information
 Customer : NAVISTAR

 Engine : DTA-360 HT

 1st version kW : 142.0
 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 2 417 413 038

 Inlet press., bar : 2.80

 Test nozzle holder assembly : 1 688 901 101

 Opening pressure, bar : 207...210

 Orifice plate diameter mm : 0,6

 Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed	rpm	: 850
Rack travel in mm : 11.10...11.20		
Del.quantity cm ³ /	: 11.4...11.6	
	100 s:	(11.2...11.8)
Spread	cm ³	: 0.3
	100 s:	(0.6)

2nd speed	rpm	: 350.0
Rack travel in mm	: 5.2...5.4	
Del.quantity cm ³ /	: 1.6...2.0	
	100 s:	(1.3...2.2)
Spread	cm ³	: 0.3
	100 s:	(0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1450
travel mm	: 8.20...8.60	
2nd speed	rpm	: 1350
travel mm	: 7.40...7.60	
3rd speed	rpm	: 500
travel mm	: 2.50...3.10	
4th speed	rpm	: 350
travel mm	: 1.30...1.70	

FULL LOAD DELIV. AT FULL LOAD STOP

1st version		
Speed	rpm	: 850
Aneroid pressure h		: 900
Del.quantity		: 114.0...116.0
1000		: (112.0...118.0)
Spread	cm ³	: 3.50
1000		: (6.00)

RATED SPEED

1st version

Control lever
position degrees: 104...112

Testing:

1st rack travel in: 9.60
Speed rpm : 1415...1435
2nd rack travel in: 4.00
Speed rpm : 1510...1520
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 350
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 300...450

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1350
Rack travel in m: 10.60...10.70
2nd speed rpm : 850
Rack travel in m: 11.10...11.20
3rd speed rpm : 1300
Rack travel in m: 10.60...10.70
4th speed rpm : 1150
Rack travel in m: 11.00...11.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.30...8.40

Measurement
Speed 1/min : 500

1st pressure hPa : 210
Rack travel in m: 8.80...8.90
2nd pressure hPa : 385
Rack travel in m: 10.40...10.80
3rd pressure hPa : 900
Rack travel in m: 11.10...11.20

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1350
Del.quantity cm³/ 1000 s: 105.0...109.0
1000 s: (103.0...111.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 62.5...64.5
1000 s: (60.5...66.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.60
Speed rpm : 1415...1435

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 13.00...14.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ 1000 s: 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks: : IHC #1818799C91

Only perform pump setting with original
overflow valve without IH hose and
restrictor 1.2 mm diameter.

In unlatched condition, do not
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 D 1
 Edition : 29.11.91
 Replaces : 02.91
 Test oil : ISO-4113

Combination no. : 0 403 446 274

Injection pump
 Pump designation : PES6MW100/720RS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. : RQ300/1300MW105-3
 Governor no. : 0 420 082 050

Customer-spec. information

Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 121.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test Lines : 1 680 715 015

Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.75)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ 100 s: 8.8...9.0

100 s: (8.6...9.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm³/ 100 s: 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400

travel mm : 8.80...9.20

2nd speed rpm : 1300

travel mm : 7.50...7.70

3rd speed rpm : 500

travel mm : 4.90...5.50

4th speed rpm : 300

travel mm : 2.10...2.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: 107

Speed rpm : 1200

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 88.0...90.0

1000 : (86.0...92.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 96...104

Setting point:
Speed rpm : 1200
Rack travel in mm : 15.5

Testing:
1st rack travel in: 9.90
Speed rpm : 1345...1360
2nd rack travel in: 4.00
Speed rpm : 1410...1440
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:
Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 510...550

TORQUE CONTROL
Dimension a mm : 0.70
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.90...11.00
2nd speed rpm : 750
Rack travel in m: 11.60...11.70
3rd speed rpm : 1100
Rack travel in m: 11.10...11.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 200
Rack travel mm : 10.20...10.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.70...9.80
3rd pressure hPa : 700
Rack travel in m: 11.60...11.70

START CUT-OUT

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm³/ : 86.0...89.0
1000 s: (83.5...91.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 49.0...51.0
1000 s: (47.0...53.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.90
Speed rpm : 1345...1360

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 6,2 F
 Edition : 23.10.91
 Replaces : 09.91
 Test oil : ISO-4113

Combination no. : 0 403 446 281

Injection pump
 Pump designation : PES6MW100/720RS1217
 EP type number : 0 413 406 207
 Governor
 Governor design. : RQ300/1000MW116
 Governer no. : 0 420 082 056

Customer-spec. information
 Customer : MWM

Engine : TBD226B-6

1st version kW : 150.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
 : (3.95...4.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.50...12.60

Del.quantity cm³/ : 14.4...14.6

100 s: (14.2...14.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.0...7.2

Del.quantity cm³/ : 1.1...1.5

100 s: (0.8...1.7)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1100

travel mm : 7.30...7.70

2nd speed rpm : 1000

travel mm : 5.90...6.10

3rd speed rpm : 370

travel mm : 4.70...5.30

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1200

Del.quantity : 144.0...146.0

1000 : (142.0...148.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 91...99

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 11.50
Speed rpm : 1040...1055
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 74...82
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.1

Testing:
Speed rpm : 200
Minimum rack trave: 8.50
Speed rpm : 300
Rack travel in mm : 7.00...7.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.80...8.90

Measurement
Speed 1/min : 500
1st pressure hPa : 300
Rack travel in m: 9.50...9.70
2nd pressure hPa : 650
Rack travel in m: 11.60...11.80
3rd pressure hPa : 1200
Rack travel in m: 12.50...12.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 750

Del.quantity cm³/ : 143.5...146.5
1000 s: (141.0...149.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 64.0...66.0
1000 s: (62.0...68.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.50
Speed rpm : 1040...1055

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 95.0...105.0
1000 s: (92.0...108.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.00...7.20
Del.quantity cm³/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

Set pneumatic shutoff device to
control-rod stop = 0.5...1.5 mm
control-rod travel at 4.5 bar
atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 8,1 D 1
 Edition : 29.11.91
 Replaces : 09.91
 Test oil : ISO-4113

Combination no. : 0 403 446 284

Injection pump
 Pump designation : PES6MW100/720RS1197
 EP type number : 0 413 406 185
 Governor
 Governor design. : RQV325...1250MW109-1
 Governer no. : 0 420 083 995

Customer-spec. information

Customer : IVECO-FIAT

Engine : 8060.45.6090

1st version kW : 167.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 14.50...14.60

Del.quantity cm³/

100 s: (10.3...10.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 7.7...7.9

Del.quantity cm³/

100 s: (1.7...2.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400

travel mm : 10.00...10.40

2nd speed rpm : 825

travel mm : 4.90...5.10

3rd speed rpm : 400

travel mm : 2.90...3.50

4th speed rpm : 325

travel mm : 1.50...1.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1200

Del.quantity : 105.0...107.0

1000 : (103.0...109.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 116...124

Testing:

1st rack travel in: 13.50
Speed rpm : 1310...1320
2nd rack travel in: 4.00
Speed rpm : 1445...1475
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 76...84
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 7.8

Testing:

Speed rpm : 200
Minimum rack trave: 9.50
Speed rpm : 325
Rack travel in mm : 7.70...7.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 14.50...14.60
2nd speed rpm : 1100
Rack travel in m: 14.20...14.40
3rd speed rpm : 900
Rack travel in m: 13.60...13.80
4th speed rpm : 700
Rack travel in m: 13.50...13.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.20...11.30

Measurement
Speed 1/min : 500

1st pressure hPa : 450
Rack travel in m: 11.70...11.80
2nd pressure hPa : 700
Rack travel in m: 12.80...13.10
3rd pressure hPa : 1000
Rack travel in m: 13.50...13.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000

Speed rpm : 1100
Del.quantity cm³/ 1000 s: 108.0...111.0
1000 s: (105.5...113.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 67.0...69.0
1000 s: (65.0...71.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.50
Speed rpm : 1310...1320

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 40.0...60.0
1000 s: (37.0...63.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 7.70...7.90
Del.quantity cm³/ 1000 s: 20.0...24.0
1000 s: (17.5...26.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 4,5 Q
 Edition : 29.11.91
 Replaces : 08.91
 Test oil : ISO-4113

Combination no. : 0 403 446 287

Injection pump
 Pump designation : PES6MW100/320RS1219
 EP type number : 0 413 406 209
 Governor
 Governor design. : RQV350...1100MW118
 Governor no. : 0 420 083 249

Customer-spec. information
 Customer : VME

Engine : TD 61 GB

1st version kW : 115.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.40...11.50

Del.quantity cm³/ : 10.9...11.1

100 s: (10.7...11.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200

travel mm : 9.00...9.40

2nd speed rpm : 1150

travel mm : 8.70...8.90

3rd speed rpm : 725

travel mm : 3.70...4.30

4th speed rpm : 350

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1000

Del.quantity : 109.0...111.0

1000 : (107.0...113.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 10.40

Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.10...1.00

LOW IDLE 1
Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.6

Testing:
Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 350
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 460...520

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.40...11.40
2nd speed rpm : 700
Rack travel in m: 12.30...12.40
3rd speed rpm : 900
Rack travel in m: 11.90...12.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 700
Pressure hPa : 450
Rack travel mm : 11.80...11.90

Measurement
Speed 1/min : 700

1st pressure hPa : -
Rack travel in m: 10.10...10.20
2nd pressure hPa : 230
Rack travel in m: 11.00...11.30
3rd pressure hPa : 1000
Rack travel in m: 12.30...12.40

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 700

Del.quantity cm³/ : 120.5...123.5
1000 s: (118.0...126.0)
Spread cm³ : 3.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 82.0...84.0
1000 s: (80.0...86.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...110.0
1000 s: (87.0...113.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 B 7
 Edition : 23.10.91
 Replaces : 09.91
 Test oil : ISO-4113
 Combination no. : 0 403 446 292
 Injection pump
 Pump designation : PES6MW100/720RS1131-
 EP type number : 1
 Governor : 0 413 406 165
 Governor design. : RQV300...1300MW123
 Governor no. : 0 420 083 255
 Customer-spec. information
 Customer : MB-NFZ
 Engine : OM366LA
 1st version kW : 170.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
 : (3.55...3.75)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 14.40...14.50

Del.quantity cm³/ : 11.4...11.6

100 s: (11.2...11.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.40...9.80

2nd speed rpm : 1350

travel mm : 8.40...8.60

3rd speed rpm : 600

travel mm : 3.70...4.30

4th speed rpm : 300

travel mm : 0.80...1.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 114.0...116.0

1000 : (112.0...118.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 110...118

Testing:

1st rack travel in: 13.40
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1480...1510
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:

Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 440...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.70...10.80

Measurement
Speed 1/min : 500

1st pressure hPa : 200
Rack travel in m: 11.50...11.70
2nd pressure hPa : 400
Rack travel in m: 13.30...13.50
3rd pressure hPa : 1000
Rack travel in m: 14.40...14.50

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 106.5...109.5
1000 s: (104.0...112.0)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 41.0...43.0
1000 s: (39.0...45.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.40
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6.1 B 8
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 294
 Injection pump
 Pump designation : PES6MW100/720RS1131-
 1
 EP type number : 0 413 406 165
 Governor
 Governor design. : RQV300...1100MW67-4
 Governor no. : 0 420 083 261
 Customer-spec. information
 Customer : MB-NFZ
 Engine : OM366LA
 1st version kW : 162.0
 Rated speed : 2200
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 30...32
 Prestroke mm : 3.60...3.70
 : (3.55...3.75)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - * : 0.50 (0.75)
BASIC SETTING
 1st speed rpm : 1100
 Rack travel in mm : 13.60...13.70
 Del.quantity cm³/ : 11.2...11.4
 100 s: (11.0...11.6)
 Spread cm³ : 0.3
 100 s: (0.6)
 2nd speed rpm : 300.0
 Rack travel in mm : 6.1...6.3
 Del.quantity cm³/ : 0.9...1.3
 100 s: (0.6...1.5)
 Spread cm³ : 0.3
 100 s: (0.5)
(B) Setting of injection pump with governor
GUIDE SLEEVE TRAVEL
 1st speed rpm : 1350
 travel mm : 8.40...8.80
 2nd speed rpm : 880
 travel mm : 4.90...5.10
 3rd speed rpm : 500
 travel mm : 2.70...3.30
 4th speed rpm : 300
 travel mm : 1.20...1.60
GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1350
 Rack travel in mm : 15.20...17.80
FULL LOAD DELIV. AT FULL LOAD STOP
 1st version
 Speed rpm : 1100
 Aneroid pressure h: 1000
 Del.quantity : 112.0...114.0
 1000 : (110.0...116.0)
 Spread cm³ : 3.50
 1000 : (6.00)
RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:

1st rack travel in: 12.60
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 78...86
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
Minimum rack trave: 7.70
Speed rpm : 300
Rack travel in mm : 6.10...6.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.80...9.90

Measurement
Speed 1/min : 500

1st pressure hPa : 400
Rack travel in m: 10.60...10.80
2nd pressure hPa : 600
Rack travel in m: 12.80...13.00
3rd pressure hPa : 1000
Rack travel in m: 13.60...13.80

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 104.5...107.5
1000 s: (102.0...110.0)
Spread cm3 : 5.00
1000 s: (7.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 35.0...37.0
1000 s: (33.0...39.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.10...6.30
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet	: MB 6,1 B 9
Edition	: 29.11.91
Replaces	: -
Test oil	: ISO-4113
Combination no.	: 0 403 446 295
Injection pump	
Pump designation	: PES6MW100/720RS1131-1
EP type number	: 0 413 406 165
Governor	
Governor design.	: RQV300...1300MW67-5
Governor no.	: 0 420 083 262
Customer-spec. information	
Customer	: MB-NFZ
Engine	: OM 366 LA
1st version kW	: 155.0
Rated speed	: 2600
TEST BENCH REQUIREMENTS	
Test oil	
inlet temp. °C	: 38...42
Overflow valve	
	: 1 419 992 198
Inlet press., bar	: 1.50
Test nozzle holder assembly	: 0 681 343 009
Opening pressure, bar	: 172...175
Test Lines	: 1 680 750 015
Outside diameter x Wall thickness	
x Length mm	: 6.00X1.50X600
(A) Injection pump setting values	
Insp. values in parentheses	
Set equal delivery quant.	
per values	_____
BEGINNING OF DELIVERY	
Test pressure, bar:	30...32
Prestroke mm	: 3.60...3.70
	: (3.55...3.75)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.10...13.20

Del.quantity cm³/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.0

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.40...8.80

2nd speed rpm : 880

travel mm : 4.90...5.10

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:

1st rack travel in: 12.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 80...88
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.9

Testing:

Speed rpm : 200
Minimum rack travel: 7.50
Speed rpm : 350
Rack travel in mm : 5.80...6.00

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.10...10.20

Measurement
Speed 1/min : 500

1st pressure hPa : 200
Rack travel in m: 11.20...11.30
2nd pressure hPa : 350
Rack travel in m: 13.10...13.20

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 85.0...88.0
1000 s: (82.5...90.5)

Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 35.0...37.0
1000 s: (33.0...39.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.10
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,7 A 4
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 296
 Injection pump
 Pump designation : PES6MW100/320RS1204
 EP type number : 0 413 406 192
 Governor
 Governor design. : RQV350...1350MW46-42
 Governer no. : 0 420 083 263
 Customer-spec. information
 Customer : NAVISTAR
 Engine : DTA-360
 1st version kW : 142.0
 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 038
 Inlet press., bar : 2.80
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 10.60...10.70

Del.quantity cm³/ : 10.9...11.1

100 s: (10.7...11.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.2...5.4

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1450
travel mm		: 8.20...8.60
2nd speed	rpm	: 1350
travel mm		: 7.40...7.60
3rd speed	rpm	: 500
travel mm		: 2.50...3.10
4th speed	rpm	: 350
travel mm		: 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	: 850
Aneroid pressure h:		900
Del.quantity		: 109.5...111.5
1000		: (107.5...113.5)
Spread	cm ³	: 3.50
1000		: (6.00)

RATED SPEED

1st version

Control lever
position degrees: 104...112

Testing:

1st rack travel in: 9.60
Speed rpm : 1415...1435
2nd rack travel in: 4.00
Speed rpm : 1510...1520
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 350
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.30...8.40

Measurement

Speed 1/min : 500

1st pressure hPa : 195
Rack travel in m: 8.90...9.00
2nd pressure hPa : 345
Rack travel in m: 10.00...10.40
3rd pressure hPa : 900
Rack travel in m: 10.60...10.70

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1350
Del.quantity cm3/ : 105.0...109.0
1000 s: (103.0...111.0)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 62.5...64.5
1000 s: (60.5...66.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 9.60
Speed rpm : 1415...1435

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 13.00...14.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.20...5.40
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: IHC #1818797C91
Only perform pump setting with original
overflow valve without IH hose and
restrictor 1.2 mm diameter.

In unlatched condition, do not
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,7 A 5
 Edition : 29.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 297
 Injection pump
 Pump designation : PES6MW100/320RS1204
 EP type number : 0 413 406 192
 Governor
 Governor design. : RQV350...1350MW46-43
 Governer no. : 0 420 083 264

Customer-spec. information

Customer : NAVISTAR

Engine : DTA-366

1st version kW : 127.0
Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder assembly : 1 688 901 101

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
: (3.20...3.40)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 10.50...10.60

Del.quantity cm³/

100 s: (10.5...11.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.2...5.4

Del.quantity cm³/

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 8.20...8.60

2nd speed rpm : 1350

travel mm : 7.40...7.60

3rd speed rpm : 500

travel mm : 2.50...3.10

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 900

Del.quantity : 107.5...109.5

1000 : (105.5...111.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 102...110

Testing:

1st rack travel in: 9.80
Speed rpm : 1420...1440
2nd rack travel in: 4.00
Speed rpm : 1520...1530
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 350
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.40...8.50

Measurement

Speed 1/min : 500

1st pressure hPa : 180
Rack travel in m: 8.90...9.00
2nd pressure hPa : 330
Rack travel in m: 9.80...10.20
3rd pressure hPa : 900
Rack travel in m: 10.50...10.60

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1350
Del.quantity cm3/ : 103.5...107.5
1000 s: (101.5...109.5)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 61.5...63.5
1000 s: (59.5...65.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 1420...1440

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 13.00...14.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.20...5.40
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: IHC #1819724C91
Only perform pump setting with original
overflow valve without IH hose and
restrictor 1.2 mm diameter.

In unlatched condition, do not
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 V
 Edition : 29.11.91
 Replaces : 06.91
 Test oil : ISO-4113
 Combination no. : 0 403 456 110
 Injection pump
 Pump designation : PES6MW100/321RS1201
 EP type number : 0 413 406 190
 Governor
 Governor design. : RQ250/1200MW84-3
 Governer no. : 0 420 082 043
 Customer-spec. information
 Customer : MAN
 Engine : D 0826 LF02
 1st version kW : 169.0
 Rated speed : 2400
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 30...32
 Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 15.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1
BASIC SETTING
 1st speed rpm : _____
 Rack travel in mm : 12.80...12.90
 Del.quantity cm³/ : _____
 100 s: (13.9...14.5)
 Spread cm³ : _____
 100 s: (0.6)
 2nd speed rpm : 250.0
 Rack travel in mm : 5.4...5.6
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)
 Spread cm³ : 0.5
 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	:	1300
travel mm		:	8.40...8.80
2nd speed	rpm	:	1260
travel mm		:	6.60...6.80
3rd speed	rpm	:	345
travel mm		:	4.00...4.60
4th speed	rpm	:	250
travel mm		:	1.80...2.20

GUIDE SLEEVE POSITION

Control-lever position	Degree:	107	
Speed	rpm	:	600
Rack travel in mm	:	18.20...19.80	

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed	rpm	:	800
Aneroid pressure h:		:	1000
Del.quantity	:	141.0...143.0	
1000	:	(139.0...145.0)	
Spread	cm ³	:	3.50
1000	:	(6.00)	

RATED SPEED

1st version

Control lever
position degrees: 92...100

Setting point:

Speed rpm : 600
Rack travel in mm : 19.0

Testing:

1st rack travel in: 11.30
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 69...77

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 7.00
Speed rpm : 250
Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 800
Rack travel in m: 12.80...12.90
2nd speed rpm : 600
Rack travel in m: 12.70...12.90
3rd speed rpm : 1000
Rack travel in m: 12.50...12.60
4th speed rpm : 1200
Rack travel in m: 12.20...12.40

Aneroid/Altitude

Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 155
Rack travel mm : 10.30...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.00...10.10

2nd pressure hPa : 550

Rack travel in m: 11.90...12.20

3rd pressure hPa : 1000

Rack travel in m: 12.70...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ 1000 s: 139.5...142.5
1000 s: (137.0...145.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ 1000 s: 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 60.0...80.0
1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ 1000 s: 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

: MAN #3-7035

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 D 2
 Edition : 23.10.91
 Replaces : 08.91
 Test oil : ISO-4113
 Combination no. : 0 403 456 117
 Injection pump
 Pump designation : PES6MW100/321RS1215
 EP type number : 0 413 406 205
 Governor
 Governor design. : RQV250...1200MW83-2
 Governer no. : 0 420 083 216
 Customer-spec. information
 Customer : MAN
 Engine : D 0826 LF 04
 1st version kW : 199.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32
 Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 16.3...16.5

100 s: (16.1...16.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 2.1...2.5

100 s: (1.8...2.7)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250

travel mm : 10.60...11.00

2nd speed rpm : 800

travel mm : 5.90...6.10

3rd speed rpm : 450

travel mm : 3.20...3.80

4th speed rpm : 250

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1200

Del.quantity : 163.0...165.0

1000 : (161.0...167.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 124...132

Testing:

1st rack travel in: 12.60
Speed rpm : 1250...1260
2nd rack travel in: 4.00
Speed rpm : 1340...1370
4th rack travel in: 14.00
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.0

Testing:

Speed rpm : 150
Minimum rack trav: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 200
Rack travel mm : 10.00...10.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.70...9.80

2nd pressure hPa : 700

Rack travel in m: 12.30...12.60

3rd pressure hPa : 1200

Rack travel in m: 13.60...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 600
Del.quantity cm³/ : 167.0...170.0
1000 s: (164.5...172.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 77.0...79.0
1000 s: (75.0...81.0)

1mm rack travel less than

full load rack tr: 12.60
Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 70.0...90.0
1000 s: (67.0...93.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 21.0...25.0
1000 s: (18.5...27.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7138

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BREAKAWAY

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 H 6
 Edition : 29.11.91
 Replaces : 07.91
 Test oil : ISO-4113
 Combination no. : 0 403 474 018
 Injection pump
 Pump designation : PES4MW100/720RS1151
 EP type number : 0 413 404 104
 Governor
 Governor design. : RSV350...1300MWOA346
 -2
 Governer no. : 0 420 085 177
 Customer-spec. information
 Customer : MB-NFZ
 Engine : OM364A
 1st version kW : 79.0
 Rated speed : 2600
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test Lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 30...32
 Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.80...10.90

Del.quantity cm³/ : 8.2...8.4

100 s: (8.0...8.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.0...6.8

Del.quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 82.0...84.0

1000 : (80.0...86.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 106...114

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.80
 Speed rpm : 1340...1345 *
 2nd rack travel in: 4.00
 Speed rpm : 1380...1393
 3rd rack travel in: 4.00
 Speed rpm : 1410...1440
 4th rack travel in: 1550
 Speed rpm : 0.30...1.70
 5th rack travel in: 1340...1350
 Speed rpm : 9.80

LOW IDLE 1

Testing:
 Speed rpm : 100
 Minimum rack trave: 19.00
 Rack travel in mm : 2.00
 Speed rpm : 420...500

TORQUE CONTROL

Torque control curve - 1st version
 1st speed rpm : 1300
 Rack travel in m: 10.80...10.90
 2nd speed rpm : 600
 Rack travel in m: 11.70...11.80
 3rd speed rpm : 1000
 Rack travel in m: 11.70...11.80
 4th speed rpm : 1175
 Rack travel in m: 11.00...11.30

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 500
 Pressure hPa : -
 Rack travel mm : 9.80...9.90

Measurement
 Speed 1/min : 500

1st pressure hPa : 200
 Rack travel in m: 10.70...10.90
 2nd pressure hPa : 300
 Rack travel in m: 11.20...11.40
 3rd pressure hPa : 700
 Rack travel in m: 11.70...11.80

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 700
 Speed rpm : 600
 Del.quantity cm³/ : 75.0...78.0
 1000 s: (72.5...80.5)
 Spread cm³ : 5.00
 1000 s: (7.0)

Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ : 46.0...48.0
 1000 s: (44.0...50.0)

BREAKAWAY

1st version
 1mm rack travel less than

full load rack tr: 9.80
 Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ : 78.0...88.0
 1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350
 Rack travel in mm : 6.00...6.80
 Del.quantity cm³/ : 10.0...14.0
 1000 s: (7.5...16.5)
 Spread cm³ : 3.50
 1000 s: (5.50)

Remarks:

:

* Read off speed set under 1.
 Add 40...53 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4.0 I 4
 Edition : 23.10.91
 Replaces : 09.91
 Test oil : ISO-4113

Combination no. : 0 403 474 020

Injection pump
 Pump designation : PES4MW100/720RS1212
 EP type number : 0 413 404 114
 Governor
 Governor design. : RSV350...1200MWOA346
 Governer no. : 0 420 085 180

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 364 LA

1st version kW : 99.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13.50...13.60

Del.quantity cm³/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.0...6.8

Del.quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 5.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 700

Del.quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 12,5
Speed rpm : 1240...1245 *
2nd rack travel in: 4.00
Speed rpm : 1285...1298
3rd rack travel in: 4.00
Speed rpm : 1325...1355
4th rack travel in: 1450
Speed rpm : 0.30...1.70
5th rack travel in: 1240...1255
Speed rpm : 12.50

LOW IDLE 1

Testing:
Speed rpm : 100
Minimum rack trave: 19.00

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.70...10.80

Measurement
Speed 1/min : 500

1st pressure hPa : 200
Rack travel in m: 11.90...12.00
2nd pressure hPa : 375
Rack travel in m: 12.90...13.20
3rd pressure hPa : 700
Rack travel in m: 13.50...13.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm3/ : 87.0...90.0
1000 s: (84.5...92.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 40.0...42.0
1000 s: (38.0...44.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.50
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 85.0...95.0
1000 s: (82.0...98.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.00...6.80
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

* Read off speed set under 1.
Add 45...53 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.
Test hydr. locking device for starting with 500...1000 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6.0 H 1
 Edition : 27.05.91
 Replaces : 04.91
 Test oil : ISO-4113
 Combination no. : 0 403 476 080
 Injection pump
 Pump designation : PES6MW100/720RS1191
 EP type number : 0 413 406 179
 Governor
 Governor design. : RSV350...1300MW0A329
 Governor no. : 0 420 085 136
 Customer-spec. information
 Customer : MB-NFZ
 Engine : OM 366 LA
 1st version kW : 170.0
 Rated speed : 2600
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 30...32
 Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1280

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 11.2...11.4

100 s: (11.0...11.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.0...6.2

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280

Aneroid pressure h: 1000

Del.quantity : 112.0...114.0

1000 : (110.0...116.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 105...113

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.00

Speed rpm : 1336...1340 *

2nd rack travel in: 4.00

Speed rpm : 1410...1428
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 75...83
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 6.00...6.20

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.10...10.20

Measurement
Speed 1/min : 500

1st pressure hPa : 350
Rack travel in m: 11.30...11.40
2nd pressure hPa : 500
Rack travel in m: 12.40...12.70
3rd pressure hPa : 1000
Rack travel in m: 14.00...14.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 101.0...104.0
1000 s: (98.5...106.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 35.0...37.0
1000 s: (33.0...39.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1330...1340

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

* Read off speed set under 1.
Add 80...88 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Test hydr. locking device for starting
with 500...1000 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 92
 Edition : 08.10.91
 Replaces : 07.91
 Test oil : ISO-4113

Combination no. : 0 403 476 088

Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RSV350...1300MW0A341
 Governor no. : 0 420 085 146

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366A

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 7.2...7.4

100 s: (7.0...7.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.0...7.6

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del.quantity : 72.0...74.0

1000 : (70.0...76.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.70

Speed rpm : 1340...1345 *
2nd rack travel in: 4.00
Speed rpm : 1380...1393
3rd rack travel in: 4.00
Speed rpm : 1400...1430
4th rack travel in: 1500
Speed rpm : 0.30...1.70
5th rack travel in: 1345...1360
Speed rpm : 9.70

LOW IDLE 1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Rack travel in mm : 2.00
Speed rpm : 445...505

TORQUE CONTROL

Dimension a mm : 1.30
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.70...10.80
2nd speed rpm : 700
Rack travel in m: 11.90...12.00
3rd speed rpm : 825
Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 69.0...71.0
1000 s: (67.0...73.0)
Spread cm³ : 5.00
1000 s: (7.0)
Speed rpm : 825
Del.quantity cm³/ : 73.0...76.0
1000 s: (70.5...78.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 7.00...7.60
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

* Read off speed set under 1.
Add 40...48 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Set pneumatic shutoff device to
control-rod stop = 0.5...1.5 mm
control-rod travel at 4.5 bar
atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 93
 Edition : 08.10.91
 Replaces : 07.91
 Test oil : ISO-4113

Combination no. : 0 403 476 089

Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RSV350...1200MMWA341
 Governer no. : 0 420 085 147

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366A

1st version kW : 115.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 12.00...12.10

Del.quantity cm³/ : 8.0...8.2

100 s: (7.8...8.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.0...7.6

Del.quantity cm³/ : 0.9...1.1

100 s: (0.6...1.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 80.5...82.5

1000 : (78.5...84.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 99...107

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.00

Speed rpm : 1240...1245 *
2nd rack travel in: 4.00
Speed rpm : 1285...1298
3rd rack travel in: 4.00
Speed rpm : 1325...1355
4th rack travel in: 1450
Speed rpm : 0.30...1.70
5th rack travel in: 1240...1255
Speed rpm : 11.00

LOW IDLE 1

Testing:

Speed rpm : 100
Minimum rack trav: 19.00
Rack travel in mm : 2.00
Speed rpm : 445...505

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 12.00...12.10
2nd speed rpm : 750
Rack travel in m: 12.50...12.60
3rd speed rpm : 1000
Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 74.5...76.5
1000 s: (72.5...78.5)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.00
Speed rpm : 1240...1245

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.00...7.60

Del.quantity cm³/ : 9.0...11.0
1000 s: (6.0...14.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
* Read off speed set under 1.
Add 45...53 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Set pneumatic shutoff device to
control-rod stop = 0.5...1.5 mm
control-rod travel at 4.5 bar
atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 94
 Edition : 08.10.91
 Replaces : 07.91
 Test oil : ISO-4113

Combination no. : 0 403 476 090

Injection pump
 Pump designation : PES6MW100/720RS1144
 EP type number : 0 413 406 138
 Governor
 Governor design. : RSV350...1200MW1A341
 -3
 Governer no. : 0 420 085 148

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366A

1st version kW : 92.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.80...9.90

Del.quantity cm³/ : 6.2...6.4

100 s: (6.0...6.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.0...7.6

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 62.0...64.0

1000 : (60.0...66.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 8.80

Speed rpm : 1235...1240 *
2nd rack travel in: 4.00
Speed rpm : 1270...1283
3rd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1450
Speed rpm : 0.30...1.70
5th rack travel in: 1245...1260
Speed rpm : 8.80

LOW IDLE 1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Rack travel in mm : 2.00
Speed rpm : 415...475

TORQUE CONTROL

Dimension a mm : 0.70
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.80...9.90
2nd speed rpm : 800
Rack travel in m: 10.50...10.60
3rd speed rpm : 950
Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm³/ : 60.5...63.5
1000 s: (58.0...66.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.80
Speed rpm : 1235...1240

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.00...7.60
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

* Read off speed set under 1.
Add 35...43 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

Set pneumatic shutoff device to
control-rod stop = 0.5...1.5 mm
control-rod travel at 4.5 bar
atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 95
 Edition : 08.10.91
 Replaces : 07.91
 Test oil : ISO-4113
 Combination no. : 0 403 476 091

Injection pump
 Pump designation : PES6MW100/720RS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. : RSV350...1300MWOA342
 Governer no. : 0 420 085 149

Customer-spec. information

Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 150.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.60...12.70

Del.quantity cm³/ : 10.0...10.2

100 s: (9.8...10.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.9

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 100.0...102.0

1000 : (98.0...104.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.60

Speed rpm : 1340...1345 *
2nd rack travel in: 4.00
Speed rpm : 1387...1400
3rd rack travel in: 4.00
Speed rpm : 1420...1450
4th rack travel in: 1600
Speed rpm : 0.30...1.70
5th rack travel in: 1345...1355
Speed rpm : 11.60

LOW IDLE 1

Testing:
Speed rpm : 100
Minimum rack trav: 19.00
Rack travel in mm : 2.00
Speed rpm : 420...480

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.70...10.80

Measurement:
Speed 1/min : 500

1st pressure hPa : 250
Rack travel in m: 11.30...11.40
2nd pressure hPa : 400
Rack travel in m: 12.10...12.40
3rd pressure hPa : 1000
Rack travel in m: 12.60...12.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 86.5...89.5
1000 s: (84.0...92.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 53.0...55.0
1000 s: (51.0...57.0)

INTERMEDIATE RATED SPEED
Rack travel in mm : 11.60
Speed rpm : 1240...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.90
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

* Read off speed set under 1.
Add 47...55 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.
Test hydr. locking device for starting with 500...1000 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 H 3
 Edition : 27.05.91
 Replaces : 31.08.90
 Test oil : ISO-4113

Combination no. : 0 403 476 093

Injection pump
 Pump designation : PES6MW100/720RS1191
 EP type number : 0 413 406 179
 Governor
 Governor design. : RSV350...1300MW0A329
 Governor no. : 0 420 085 151

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 155.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1280

Rack travel in mm : 12.00...12.10

Del.quantity cm³/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.3...5.5

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280

Aneroid pressure h: 1000

Del.quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 105...113

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.00

Speed rpm : 1330...1340 *

2nd rack travel in: 4.00

Speed rpm : 1410...1428
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 75...83
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.4

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.30...5.50

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

Aneroid/Altitude
Compenisator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.00...9.10

Measurement
Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 10.60...10.70
2nd pressure hPa : 380
Rack travel in m: 11.20...11.50
3rd pressure hPa : 1000
Rack travel in m: 12.00...12.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 85.0...88.0
1000 s: (82.5...90.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 35.0...37.0
1000 s: (33.0...39.0)

1mm rack travel less than
full load rack tr: 11.00
Speed rpm : 1330...1340

INTERMEDIATE RATED SPEED
Rack travel in mm : 11.00
Speed rpm : 1330...1335

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 9.0...13.0
1000 s: 35...1240.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

:
Test hydr. locking device for starting
with 500...1000 hPa air pressure.

* Read off speed set under 1.
Add 80...88 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

BREAKAWAY

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6.1 B 2
 Edition : 18.09.91
 Replaces : 02.91
 Test oil : ISO-4113

Combination no. : 0 403 476 100

Injection pump
 Pump designation : PES6MW100/720RS1131-
 1
 EP type number : 0 413 406 165
 Governor
 Governor design. : RSV350...1300MW0A342
 -3
 Governor no. : 0 420 085 162

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 157.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.20...13.30

Del.quantity cm³/ : 10.2...10.4
 100 s: (10.0...10.6)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 5.7...6.3
 Del.quantity cm³/ : 1.0...1.2
 100 s: (0.6...1.5)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 1000
 Del.quantity : 102.0...104.0
 1000 : (100.0...106.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 97...105

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.20
Speed rpm : 1340...1345 *
2nd rack travel in: 4.00
Speed rpm : 1390...1403
3rd rack travel in: 4.00
Speed rpm : 1420...1450
4th rack travel in: 1550
Speed rpm : 0.30...1.70
5th rack travel in: 1340...1350
Speed rpm : 12.20

LOW IDLE 1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Rack travel in mm : 2.00
Speed rpm : 410...470

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.80...9.90

Measurement

Speed 1/min : 500

1st pressure hPa : 190
Rack travel in m: 11.00...11.10
2nd pressure hPa : 350
Rack travel in m: 12.30...12.60
3rd pressure hPa : 1000
Rack travel in m: 13.20...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 89.0...92.0
1000 s: (86.5...94.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 36.0...38.0
1000 s: (34.0...40.0)

1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 95.0...105.0
1000 s: (92.0...108.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...6.30
Del.quantity cm³/ : 10.0...12.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

* Read off speed set under 1.
Add 50...58 min⁻¹ to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm
control-rod travel at 4.5 bar atmospheric pressure.
Test hydr. locking device for starting with 500...1000 hPa air pressure.

BREAKAWAY

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 D 8
 Edition : 29.11.91
 Replaces : 07.91
 Test oil : ISO-4113

Combination no. : 0 403 476 107

Injection pump
 Pump designation : PES6MW100/720RS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. : RSV350...1300MWOA342
 -5
 Governer no. : 0 420 085 172

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 122.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 8.4...8.6

100 s: (8.2...8.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.8...6.5

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 750

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 110...118

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.90
 Speed rpm : 1340...1345 *
 2nd rack travel in: 4.00
 Speed rpm : 1380...1393
 3rd rack travel in: 4.00
 Speed rpm : 1400...1430
 4th rack travel in: 1550
 Speed rpm : 0.30...1.70
 5th rack travel in: 1345...1360
 Speed rpm : 9.90

LOW IDLE 1

Testing:

Speed rpm : 100
 Minimum rack trave: 19.00
 Rack travel in mm : 2.00
 Speed rpm : 420...500

TORQUE CONTROL

Torque control curve - 1st version
 1st speed rpm : 1300
 Rack travel in m: 10.90...11.00
 2nd speed rpm : 600
 Rack travel in m: 11.80...11.90
 3rd speed rpm : 1100
 Rack travel in m: 11.00...11.20

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 500
 Pressure hPa : -
 Rack travel mm : 9.80...9.90

Measurement
 Speed 1/min : 500

1st pressure hPa : 300
 Rack travel in m: 10.70...10.90
 2nd pressure hPa : 400
 Rack travel in m: 11.30...11.50
 3rd pressure hPa : 750
 Rack travel in m: 11.80...11.90

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 750
 Speed rpm : 600
 Del.quantity cm3/ : 78.0...81.0
 1000 s: (75.5...83.5)
 Spread cm3 : 5.00
 1000 s: (7.0)
 Aneroid pressure h: -
 Speed rpm : 500

Del.quantity cm3/ : 47.0...49.0
 1000 s: (45.0...51.0)

BREAKAWAY

1st version
 1mm rack travel less than

full load rack tr: 9.90
 Speed rpm : 1340...1345

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm3/ : 83.0...93.0
 1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 350
 Rack travel in mm : 5.80...6.50
 Del.quantity cm3/ : 9.0...13.0
 1000 s: (6.5...15.5)
 Spread cm3 : 3.50
 1000 s: (5.50)

Remarks:

:

* Read off speed set under 1.
 Add 40...48 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.
 Test hydr. locking device for starting with 500...1000 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 B 5
 Edition : 27.09.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 476 109

Injection pump
 Pump designation : PES6MW100/720RS1131-
 EP type number : 0 413 406 165
 Governor
 Governor design. : RSV350...1300MW0A329-
 Governor no. : 0 420 085 178

Customer-spec. information

Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 155.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1280

Rack travel in mm : 13.10...13.20

Del.quantity cm³/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm³/ : 0.9...1.3
 100 s: (0.6...1.5)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280

Aneroid pressure h: 1000

Del.quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 105...113

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.0

Speed rpm : 1330...1335 *
2nd rack travel in: 4.00
Speed rpm : 1410...1423
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.80...6.00

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.10...10.20

Measurement

Speed 1/min : 500

1st pressure hPa : 350
Rack travel in m: 11.00...11.10
2nd pressure hPa : 550
Rack travel in m: 12.40...12.70
3rd pressure hPa : 1000
Rack travel in m: 13.10...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 85.0...88.0
1000 s: (82.5...90.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 35.0...37.0
1000 s: (33.0...39.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.00
Speed rpm : 1330...1335

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:
Test hydr. locking device for starting with 500...1000 hPa air pressure.

* Read off speed set under 1.
Add 80...88 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,7 C
 Edition : 22.11.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 403 476 111

Injection pump
 Pump designation : PES6MW100/320RS1198-
 EP type number : 0 413 406 211
 Governor
 Governor design. : RSV350...1250MW2A347
 Governor no. : 0 420 085 182

Customer-spec. information

Customer : NAVISTAR

Engine : DT-466

1st version kW : 156.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 11.60...11.70

Del.quantity cm³/ : 12.3...12.5

100 s: (12.1...12.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.1...5.3

Del.quantity cm³/ : 1.5...1.9

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 900

Del.quantity : 123.0...125.0

1000 : (121.0...127.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 94...102

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.60
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1350...1360
3rd rack travel in: 4.00
Speed rpm : 1340...1370
4th rack travel in: 1450
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.10...5.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.40...9.50

Measurement

Speed 1/min : 500

1st pressure hPa : 265
Rack travel in m: 10.00...10.10
2nd pressure hPa : 455
Rack travel in m: 10.80...11.20
3rd pressure hPa : 900
Rack travel in m: 11.60...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 79.5...83.5
1000 s: (77.5...85.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 160.0...180.0
1000 s: (155.0...185.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.10...5.30
Del.quantity cm3/ : 15.5...19.5
1000 s: (13.0...22.0)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

: IHC #1818555C91

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7.3 B
 Edition : 20.09.91
 Replaces : 11.90
 Test oil : ISO-4113

Combination no. : 0 403 486 103

Injection pump
 Pump designation : PES6MW100/321RS1208
 EP type number : 0 413 406 199
 Governor
 Governor design. : RSV300...1050MW0A802
 -2
 Governer no. : 0 420 085 156

Customer-spec. information

Customer : MAN

Engine : D0826LE 10

1st version kW : 165.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 14.0...14.2

100 s: (13.8...14.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.0...5.2

Del.quantity cm³/ : 1.1...1.5

100 s: (0.8...1.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 140.0...142.0

1000 : (138.0...144.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 111...119

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.00

Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1400
Speed rpm : 0.30...1.70

Remarks:

: MAN #3-7103

Start-of-delivery mark is at start of delivery of cylinder 1

LOW IDLE 1
Control lever
position degrees: 61...69
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.1

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.00...5.20

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm³/ : 139.5...142.5
1000 s: (137.0...145.0)
Spread cm³ : 5.00
1000 s: (7.0)
Speed rpm : 800
Del.quantity cm³/ : 145.5...148.5
1000 s: (143.0...151.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (127.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.00...5.20
Del.quantity cm³/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 8,7 Q
 Edition : 08.10.91
 Replaces : 08.90
 Test oil : ISO-4113

Combination no. : 0 403 546 006

Injection pump
 Pump designation : PE6MW100/720RS1177
 EP type number : 0 413 506 107
 Governor
 Governor design. : RQ300/1250MW12-1
 Governer no. : 0 420 082 010

Customer-spec. information
 Customer : MB-NFZ

Engine : OM360A

1st version kW : 155.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.80...3.90
 : (3.75...3.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.40...12.50

Del.quantity cm³/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.3...8.4

Del.quantity cm³/ : 1.3...1.7

100 s: (1.1...2.0)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1410

travel mm : 9.80...10.20

2nd speed rpm : 1310

travel mm : 7.30...7.50

3rd speed rpm : 420

travel mm : 5.70...6.30

4th speed rpm : 300

travel mm : 2.30...2.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: i08

Speed rpm : 650

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 99.5...101.5

1000 : (97.5...103.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 99...107

Setting point:

Speed rpm : 650
Rack travel in mm : 13.5

Testing:

1st rack travel in: 11.40
Speed rpm : 1295...1310
2nd rack travel in: 4.00
Speed rpm : 1395...1425
4th rack travel in: 1550
Speed rpm : 0.10...1.00

LOW IDLE 1

Control lever
position degrees: 74...82

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.3

Testing:

Speed rpm : 200
Minimum rack trave: 10.00
Speed rpm : 300
Rack travel in mm : 8.30...8.40
Rack travel in mm : 2.00
Speed rpm : 395...435

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 96.5...99.5
1000 s: (94.0...102.0)
Spread cm³ : 5.00
1000 s: (7.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1295...1310

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...135.0
1000 s: (122.0...138.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.30...8.40
Del.quantity cm³/ : 13.5...17.5
1000 s: (11.0...20.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13,4D18
 Edition : 20.09.91
 Replaces : 06.91
 Test oil : ISO-4113

Combination no. : 0 403 548 038

Injection pump
 Pump designation : PE8MW100/720LS1128
 EP type number : 0 413 508 103
 Governor
 Governor design. : RQ300/1200MW/71-1
 Governor no. : 0 420 082 060

Customer-spec. information
 Customer : KHD

Engine : BF8L513

1st version kW : 172.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 10.7...10.9

100 s: (10.5...11.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.0

Del.quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1290

travel mm : 8.70...9.30

2nd speed rpm : 1200

travel mm : 5.90...6.30

3rd speed rpm : 600

travel mm : 5.80...6.20

4th speed rpm : 300

travel mm : 2.00...2.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108

Speed rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 107.0...109.0

1000 : (105.0...111.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 90...102

Setting point:
Speed rpm : 650
Rack travel in mm : 20.0

Testing:
1st rack travel in: 10.90
Speed rpm : 1240...1255
2nd rack travel in: 4.00
Speed rpm : 1280...1310
4th rack travel in: 14.00
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.9

Testing:
Speed rpm : 200
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.00

START CUT-OUT

Speed 1/min : 220 (250)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1240...1255

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ 1000 s: 135.0...155.0
1000 s: (132.0...158.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.00
Del.quantity cm³/ 1000 s: 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13/4 G
 Edition : 23.10.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 548 039
 Injection pump
 Pump designation : PE8MW100/720LS1128-1
 EP type number : 0 413 508 109
 Governor
 Governor design. : RQV300...1150MW56-6
 Governor no. : 0 420 083 254
 Customer-spec. information
 Customer : KHD
 Engine : BF 8L 513
 1st version kW : 225.0
 Rated speed : 2300
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 740 014
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600
(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 30...32
 Prestroke mm : 3.10...3.20
 : (3.05...3.25)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 14.2...14.4

100 s: (14.0...14.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del.quantity cm³/ : 1.3...1.7

100 s: (1.1...1.9)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1300

travel mm : 9.80...10.20

2nd speed rpm : 1220

travel mm : 8.80...9.00

3rd speed rpm : 600

travel mm : 3.90...4.50

4th speed rpm : 300

travel mm : 0.50...0.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1200

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1000

Del.quantity : 142.0...144.0

1000 : (140.0...146.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:

1st rack travel in: 11.90
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1290...1320
4th rack travel in: 14.00
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 84...92
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.0

Testing:

Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

Speed rpm : 340...400

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 12.90...13.00
2nd speed rpm : 700
Rack travel in m: 13.30...13.50
3rd speed rpm : 800
Rack travel in m: 13.00...13.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 660
Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.90...12.00
2nd pressure hPa : 530
Rack travel in m: 12.20...12.50
3rd pressure hPa : 1000
Rack travel in m: 13.30...13.50

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm3/ : 142.5...145.5
1000 s: (140.0...148.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 450
Del.quantity cm3/ : 107.0...109.0
1000 s: (105.0...111.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.90...7.10
Del.quantity cm3/ : 13.0...17.0
1000 s: (11.0...19.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8.2 a
 Edition : 29.11.91
 Replaces : 4.86
 Test oil : ISO-4113
 Combination no. : 0 405 058 201
 Injection pump
 Pump designation : PE8AM90D321RS2014
 EP type number : 0 415 098 204
 Governor
 Governor design. : RQV275...1500AB837R
 Governer no. : 0 420 213 068
 Customer-spec. information
 Customer : RVI
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test Lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 25...27
 Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 8- 7- 3- 6- 5-
 Firing order : 4- 2

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed	rpm	: 1200
Rack travel in mm		: 10.20...10.30
Del.quantity cm ³ /		: 8.7...8.8
	100 s:	(8.5...9.0)
Spread	cm ³	: 0.3
	100 s:	(0.4)
2nd speed	rpm	: 275.0
Rack travel in mm		: 6.6...6.8
Del.quantity cm ³ /		: 1.6...2.0
	100 s:	(1.4...2.2)
Spread	cm ³	: 0.4
	100 s:	(0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 275
 travel mm : 0.40...0.80
 2nd speed rpm : 390
 travel mm : 1.70...2.20
 3rd speed rpm : 440
 travel mm : 2.20...2.70
 4th speed rpm : 1000
 travel mm : 3.90...4.40
 5th speed rpm : 1610
 travel mm : 8.90...9.40

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1660
 Rack travel in mm : 7.90...10.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Del.quantity : 87.0...88.0
 1000 : (85.0...90.0)
 Spread cm³ : 3.00
 1000 : (4.50)

RATED SPEED

1st version
 Control lever
 position degrees: 118...126

Testing:

1st rack travel in: 9.20
Speed rpm : 1595...1605
2nd rack travel in: 4.00
Speed rpm : 1660...1690

LOW IDLE 1

Control lever
position degrees: 64...72

Testing:

Speed rpm : 100
Minimum rack travel: 8.20
Speed rpm : 275
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION

Speed rpm : 325...390

START CUT-OUT

Speed 1/min : 240 (260)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1595...1605

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 158.0...168.0
1000 s: (155.0...171.0)
Rack travel in mm : 17.50...17.90

Remarks:

:

Start-of-delivery mark cyl. 7

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 b 1
 Edition : 02.12.91
 Replaces : 1.9.88
 Test oil : ISO-4113
 Combination no. : 9 400 083 451

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 028
 Governor
 Governor design. : RQV350...1100AB1218R
 Governer no. : 9 420 080 214

Customer-spec. information
 Customer : CUMMINS
 Engine : 6 CT/8.3 1
 1st version kW : 157.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175

Test lines : 1 680 750 014
 Outside diameter x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference * CS : 3.00...4.00

BASIC SETTING

1st speed	rpm	: 1100
Rack travel in mm		: 12.60...12.70
Del.quantity cm ³ /		: 11.7...11.9
100 s:		(11.5...12.1)
Spread	cm ³	: 0.3
100 s:		(0.6)

2nd speed	rpm	: 350.0
Rack travel in mm		: 5.8...6.0
Del.quantity cm ³ /		: 1.3...1.7
100 s:		(1.0...1.9)
Spread	cm ³	: 0.3
100 s:		(0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL		
1st speed	rpm	: 1100
travel mm		: 8.40...8.50
2nd speed	rpm	: 350
travel mm		: 2.20...2.60
3rd speed	rpm	: 500
travel mm		: 3.90...4.20
4th speed	rpm	: 800
travel mm		: 5.60...5.90

GUIDE SLEEVE POSITION		
Control-lever position		
Degree:	-1	
Speed	rpm	: 1090
Rack travel in mm		: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP
 1st version

Speed rpm : 1100
 Aneroid pressure hPa : 800
 Del.quantity : 117.0...119.0
 1000 : (115.0...121.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 114...122

Testing:

1st rack travel in: 11.60
 Speed rpm : 1140...1150
 2nd rack travel in: 4.00
 Speed rpm : 1240...1270
 4th rack travel in: 1370
 Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
 position degrees: 67...75

Testing:

Speed rpm : 100
 Minimum rack trave: 9.00
 Speed rpm : 350
 Rack travel in mm : 5.80...6.00

CONSTANT REGULATION

Speed rpm : 350...500

TORQUE CONTROL

Dimension a mm : 1.00
 Torque control curve - 1st version
 1st speed rpm : 1100
 Rack travel in m: 12.60...12.70
 2nd speed rpm : 700
 Rack travel in m: 13.60...13.70
 3rd speed rpm : 800
 Rack travel in m: 13.30...13.50
 4th speed rpm : 950
 Rack travel in m: 12.80...13.10

Aneroid/Altitude Compensator Test

1st version
 Setting
 Speed rpm : 500
 Pressure hPa : 800
 Rack travel mm : 13.60...13.70

Measurement
 Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 11.90...12.00
 2nd pressure hPa : 600
 Rack travel in m: 13.20...13.30
 3rd pressure hPa : 500
 Rack travel in m: 12.20...12.40

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
 Aneroid pressure h: 800
 Speed rpm : 700
 Del.quantity cm³/ : 131.5...134.5
 1000 s: (129.0...137.0)
 Aneroid pressure h: 800
 Speed rpm : 800
 Del.quantity cm³/ : 128.0...131.0
 1000 s: (125.5...133.5)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm³/ : 93.5...95.5
 1000 s: (91.5...97.5)

BREAKAWAY

1st version
 1mm rack travel less than
 full load rack tr: 11.60
 Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ : 156.0...186.0
 1000 s: (-)
 Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
 Rack travel in mm : 5.80...6.00
 Del.quantity cm³/ : 13.0...17.0
 1000 s: (10.5...19.5)
 Spread cm³ : 3.50
 1000 s: (5.50)

Remarks:
 :

Start-of-delivery mark at 10° cam
 rotation angle after start of delivery,
 cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 b 2
 Edition : 02.12.91
 Replaces : 1.9.88
 Test oil : ISO-4113
 Combination no. : 9 400 083 452
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 -2
 EP type number : 9 410 230 028
 Governor
 Governor design. : RQV350...1250AB1225R
 Governer no. : 9 420 080 224
 Customer-spec. information
 Customer : CUMMINS
 Engine : 6 C 8.3L
 1st version kW : 123.0
 Rated speed : 2500
TEST BENCH REQUIREMENTS
 Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____
BEGINNING OF DELIVERY
 Test pressure, bar: 25...27
 Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1
BEGINNING OF DELIVERY DIFFERENCE
 betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00
BASIC SETTING
 1st speed rpm : 1250
 Rack travel in mm : 11.20...11.30
 Del.quantity cm³/ : 10.3...10.5
 100 s: (10.1...10.7)
 Spread cm³ : 0.3
 100 s: (0.6)
 2nd speed rpm : 350.0
 Rack travel in mm : 5.3...5.5
 Del.quantity cm³/ : 1.4...1.8
 100 s: (1.1...2.0)
 Spread cm³ : 0.3
 100 s: (0.5)
 (B) Setting of injection pump with governor
GUIDE SLEEVE TRAVEL
 1st speed rpm : 1265
 travel mm : 8.40...8.60
 2nd speed rpm : 900
 travel mm : 5.50...6.00
 3rd speed rpm : 500
 travel mm : 3.70...4.20
 4th speed rpm : 350
 travel mm : 1.80...2.30
GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1250
 Rack travel in mm : 15.20...17.80
FULL LOAD DELIV. AT FULL LOAD STOP
 1st version

Speed rpm : 1250
Del.quantity : 103.5...105.5
1000 : (101.5...107.5)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:

1st rack travel in: 10.20
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1390...1420
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...74

Testing:

Speed rpm : 100
Minimum rack trave: 9.80
Speed rpm : 350
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 390...460

TORQUE CONTROL

Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 11.20...11.30
2nd speed rpm : 500
Rack travel in m: 11.80...11.90
3rd speed rpm : 600
Rack travel in m: 11.50...11.70
4th speed rpm : 750
Rack travel in m: 11.30...11.60

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 100.5...103.5
1000 s: (98.0...106.0)
Speed rpm : 600
Del.quantity cm³/ : 103.5...106.5
1000 s: (101.0...109.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 156.0...186.0
1000 s: (151.0...191.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MM 5,9 i 4
 Edition : 24.10.91
 Replaces : 16.8.88
 Test oil : ISO-4113
 Combination no. : 9 400 085 224
 Injection pump
 Pump designation : PES6A90D320RS2605
 EP type number : 9 400 083 078
 Governor
 Governor design. : RSV350...1050A1B2029
 -2R
 Governer no. : 9 420 083 182
 Customer-spec. information
 Customer : MM
 Engine : TD 229-6

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 046
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 opening pressure, bar : 172...175
 Test lines : 1 680 750 003
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. mi: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 8.20...8.30
 Del.quantity cm³/ : 5.3...5.4
 100 s: (5.1...5.6)

Spread cm³ : 0.3
 100 s: (0.5)

2nd speed rpm : 350.0
 Rack travel in mm : 6.4...6.6
 Del.quantity cm³/ : 0.7...1.1
 100 s: (0.5...1.3)
 Spread cm³ : 0.2
 100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del.quantity : 53.0...54.0
 1000 : (51.0...56.0)
 Spread cm³ : 3.00
 1000 : (5.00)

RATED SPEED

1st version
 Control lever position degrees: 53...61

Testing:

1st rack travel in: 7.20
Speed rpm : 1070...1080
2nd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1250
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.0

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 530...590
Speed rpm : 670
Maximum rack trave: 1.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 8.20...8.30
2nd speed rpm : 500
Rack travel in m: 9.00...9.10
3rd speed rpm : 700
Rack travel in m: 8.90...9.10
4th speed rpm : 875
Rack travel in m: 8.40...8.70

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 46.0...50.0
1000 s: (43.5...52.5)
Speed rpm : 700
Del.quantity cm³/ : 51.5...53.5
1000 s: (49.0...56.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 7.20
Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 7.5...11.5
1000 s: (5.5...13.5)
Spread cm³ : 2.50
1000 s: (4.50)

Remarks:
:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 3,8 h 2
 Edition : 24.10.91
 Replaces : 9.85
 Test oil : ISO-4113
 Combination no. : 9 400 085 233
 Injection pump
 Pump designation : PES4A90D410RS2294
 EP type number : 0 410 894 011
 Governor
 Governor design. : RSV400...1200A0B2188
 Governer no. : 9 420 083 187
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM 314

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 003
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.00...10.10

Del.quantity cm³/ : 6.1...6.2

100 s: (5.9...6.4)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 400.0

Rack travel in mm : 7.1...7.3

Del.quantity cm³/ : 1.0...1.4

100 s: (0.8...1.6)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 61.5...62.5

1000 : (59.5...64.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 45...53

Testing:

1st rack travel in: 9.00

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1295...1325

4th rack travel in: 1400

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.7

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 7.10...7.30
Rack travel in mm : 2.00
Speed rpm : 480...540
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 10.00..10.10
2nd speed rpm : 550
Rack travel in m: 10.00...10.20
5th speed rpm : 450
Rack travel in m: 11.60...11.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.00
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 14.20...14.80

Remarks:
:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet	: MWM 5,9 c
Edition	: 24.10.91
Replaces	: 26.3.90
Test oil	: ISO-4113
Combination no.	: 9 400 085 239
Injection pump	
Pump designation	: PES6A90D320RS2701
EP type number	: 9 400 083 094
Governor	
Governor design.	: RSV350...1150A2B2097 -1
Governer no.	: 9 420 083 197
Customer-spec. information	
Customer	: MWM
Engine	: TD229-6
1st version kW	: 106.7
Rated speed	: 2300
TEST BENCH REQUIREMENTS	
Test oil	
inlet temp. °C	: 38...42
Overflow valve	
	: 1 417 413 046
Inlet press., bar	: 1.50
Test nozzle holder assembly	: 0 681 343 009
Opening pressure, bar	: 172...175
Test lines	: 1 680 750 003
Outside diameter x Wall thickness	
x Length mm	: 6.00x2.00x600
(A) Injection pump setting values	
Insp. values in parentheses	
Set equal delivery quant.	
per values _____	
BEGINNING OF DELIVERY	
Test pressure, bar: 25...27	
Prestroke mm	: 2.65...2.75 : (2.60...2.80)

Rack travel in mm	: 9.00...12.00
Firing order	: 1- 5- 3- 6- 2- 4
Phasing	: 0-60-120-180-240-300
Tolerance + - °	: 0.50 (0.75)
Time to cyl. no.	: 1
BEGINNING OF DELIVERY DIFFERENCE	
betw. rack trav. m:	: 9.00...12.00
& maximum rack tra:	: 21.00
Difference ° CS	: 4.00...5.00
BASIC SETTING	
1st speed	rpm : 1150
Rack travel in mm	: 10.80...10.90
Del.quantity cm ³ /	: 8.1...8.2
100 s:	(7.9...8.4)
Spread	cm ³ : 0.3
100 s:	(0.5)
2nd speed	rpm : 350.0
Rack travel in mm	: 5.3...5.5
Del.quantity cm ³ /	: 0.8...1.2
100 s:	(0.6...1.4)
Spread	cm ³ : 0.2
100 s:	(0.4)
GUIDE SLEEVE POSITION	
Control-lever position	
Degree:	-3
Speed	rpm : 800
Rack travel in mm	: 0.30...1.00
Governor spring pre-tension	
Click setting x	: 4.00
FULL LOAD DELIV. AT FULL LOAD STOP	
1st version	
Speed	rpm : 1150
Del.quantity	: 81.0...82.0
1000	: (79.0...84.0)
Spread	cm ³ : 3.00
1000	: (5.00)
RATED SPEED	
1st version	

Control lever
position degrees: 93...101

Testing:

1st rack travel in: 9.80
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.30...5.50
Rack travel in mm : 2.00
Speed rpm : 540...600

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.80...10.90
2nd speed rpm : 500
Rack travel in m: 11.20...11.30
3rd speed rpm : 700
Rack travel in m: 11.20...11.30
4th speed rpm : 950
Rack travel in m: 11.00...11.10

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 74.5...76.5
1000 s: (72.0...79.0)
Speed rpm : 700
Del.quantity cm³/ : 77.0...79.0
1000 s: (74.5...81.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 8.0...12.0
1000 s: (6.0...14.0)
Spread cm³ : 2.50
1000 s: (4.50)

Remarks:

APPLICATION : VALMET
Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 3,9 a
 Edition : 24.10.91
 Replaces : 15.8.89
 Test oil : ISO-4113

 Combination no. : 9 400 085 240

 Injection pump
 Pump designation : PES4A90D320RS2702
 EP type number : 9 400 083 095
 Governor
 Governor design. : RSV350...1150A2B2129
 -4R
 Governer no. : 9 420 083 193

 Customer-spec. information
 Customer : MWM

 Engine : D 229-4

 1st version kW : 75.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve : 1 417 413 047

 Inlet press., bar : 1.50

 Test nozzle holder assembly : 0 681 343 009

 Opening pressure, bar : 172...175

 Test Lines : 1 680 750 003

 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.65...2.75
 : (2.60...2.80)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.00...9.10

Del.quantity cm³/ : 6.3...6.4

100 s: (6.1...6.6)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.0...1.4

100 s: (0.8...1.6)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 63.5...64.5

1000 : (61.5...66.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever
position degrees: 95...103

Speed rpm : 100
Rack travel in mm : 19.00...21.00

Testing:

1st rack travel in: 8.00
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 14.00
Speed rpm : 0.30...1.70

Remarks:

: VALMET

APPLICATION

Tractor (tractor engines)

LOW IDLE 1

Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 560...620

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9.00...9.10
2nd speed rpm : 500
Rack travel in m: 10.10...10.20
3rd speed rpm : 800
Rack travel in m: 9.70...9.90
4th speed rpm : 1000
Rack travel in m: 9.10...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 61.0...63.0
1000 s: (59.5...64.5)
Speed rpm : 800
Del.quantity cm³/ : 66.0...68.0
1000 s: (63.5...70.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.00
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 2,9 a
 Edition : 24.10.91
 Replaces : 26.3.90
 Test oil : ISO-4113

Combination no. : 9 400 085 241

Injection pump
 Pump designation : PES3A90D320RS2703
 EP type number : 9 400 083 096
 Governor
 Governor design. : RSV350...1150A2B2129
 -4R
 Governor no. : 9 420 083 193

Customer-spec. information
 Customer : MWM

Engine : D 229-3

1st version kW : 42.7
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.65...2.75
 : (2.60...2.80)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 2- 3

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 8.50...8.60

Del.quantity cm³/ : 5.8...5.9

100 s: (5.6...6.1)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 350.0
 Rack travel in mm : 5.5...5.7
 Del.quantity cm³/ : 1.1...1.5
 100 s: (0.9...1.7)

Spread cm³ : 0.2
 100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150
 Del.quantity : 58.0...59.0
 1000 : (56.0...61.0)
 Spread cm³ : 3.00
 1000 : (5.00)

RATED SPEED

1st version

Control lever
position degrees: 93...101

Remarks:

: VALMET

Testing:

1st rack travel in: 7.50
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1400
Speed rpm : 0.30...1.70

APPLICATION

Tractor (tractor engines)

LOW IDLE 1

Control lever
position degrees: 73...81
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 545...605

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150
Rack travel in m: 8.50...8.60
2nd speed rpm : 500
Rack travel in m: 9.40...9.50
4th speed rpm : 800
Rack travel in m: 8.90...9.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 54.0...56.0
1000 s: (51.5...58.5)
Speed rpm : 800
Del.quantity cm³/ : 60.5...62.5
1000 s: (58.0...65.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.50
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 3,9 b 1
 Edition : 02.12.91
 Replaces : 5.85
 Test oil : ISO-4113

Combination no. : 9 400 085 243

Injection pump
 Pump designation : PES4A80D320RS1282-1
 EP type number : 9 400 083 097
 Governor
 Governor design. : RS350/1500A2B2073-2R
 Governer no. : 9 420 083 194

Customer-spec. information

Customer : MWM

Engine : D 229-4

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.65...2.75
 : (2.60...2.80)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1500

Rack travel in mm : 9.20...9.30

Del.quantity cm³/ : 5.8...5.9

100 s: (5.6...6.0)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 6.0...6.2

Del.quantity cm³/ : 0.7...1.1

100 s: (0.5...1.2)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1500

Del.quantity : 58.0...59.0

1000 : (56.5...60.5)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testing:

1st rack travel in: 8.20

Speed rpm : 1540...1550	Remarks:
2nd rack travel in: 4.00	:
Speed rpm : 1585...1615	
4th rack travel in: 1700	
Speed rpm : 0.30...1.70	

LOW IDLE 1
Control lever
position degrees: 28...36
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.1

Testing:
Speed rpm : 250
Minimum rack trave: 6.80
Speed rpm : 350
Rack travel in mm : 6.00...6.20
Rack travel in mm : 4.00
Speed rpm : 430...490
Speed rpm : 700
Maximum rack trave: 3.50

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1500
Rack travel in m: 9.20...9.30
2nd speed rpm : 500
Rack travel in m: 10.60...10.70
3rd speed rpm : 900
Rack travel in m: 10.20...10.40
4th speed rpm : 1200
Rack travel in m: 9.50...9.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 58.5...60.5
1000 s: (56.5...62.5)
Speed rpm : 900
Del.quantity cm³/ : 63.0...65.0
1000 s: (61.0...67.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.20
Speed rpm : 1540...1550

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 3,8 h 1
 Edition : 24.10.91
 Replaces : 9.85
 Test oil : ISO-4113

Combination no. : 9 400 085 251

Injection pump
 Pump designation : PES4A90D410RS2294
 EP type number : 0 410 894 011
 Governor
 Governor design. : RSV350...1300AOB1150
 -2L
 Governer no. : 9 420 083 199

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 314

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.00...10.10

Del.quantity cm³/ : 6.2...6.3

100 s: (6.0...6.5)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 350.0

Rack travel in mm : 7.1...7.3

Del.quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del.quantity : 62.0...63.0

1000 : (60.0...65.0)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 9.00

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed rpm : 1390...1420

4th rack travel in: 1500

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.7

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 7.10...7.30
Rack travel in mm : 2.00
Speed rpm : 430...500
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.00...10.10
2nd speed rpm : 500
Rack travel in m: 10.00...10.20
5th speed rpm : 400
Rack travel in m: 11.60...11.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.00
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 14.20...14.80

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MMM 3,9 b 2
 Edition : 24.10.91
 Replaces : 10.85
 Test oil : ISO-4113

Combination no. : 9 400 085 257

Injection pump
 Pump designation : PES4A80D320RS1282
 EP type number : 9 400 083 056
 Governor
 Governor design. : RSV350...1100A2B2129
 Governor no. : 9 420 083 206

Customer-spec. information
 Customer : MMM

Engine : D 229-4

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 8.70...8.80

Del.quantity cm³/ : 4.8...4.9

100 s: (4.7...5.1)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 1.0...1.3

100 s: (0.8...1.4)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 48.5...49.5

1000 : (47.0...51.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 7.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.30...1.70

APPLICATION

Tractor (tractor engines)

LOW IDLE 1

Control lever
position degrees: 18...25
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 590...650

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 8.70...8.80
2nd speed rpm : 500
Rack travel in m: 10.00...10.10
4th speed rpm : 900
Rack travel in m: 9.10...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 50.0...52.0
1000 s: (48.0...54.0)
Speed rpm : 900
Del.quantity cm³/ : 49.0...51.0
1000 s: (47.0...53.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,9 a 3
 Edition : 24.10.91
 Replaces : 12.85
 Test oil : ISO-4113

Combination no. : 9 400 085 261

Injection pump
 Pump designation : PES6A80D320RS1271
 EP type number : 9 400 083 058
 Governor
 Governor design. : RSV350...1250AOB2029
 -3
 Governor no. : 9 420 083 208

Customer-spec. information
 Customer : MWM

Engine : D 229-6

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 046

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 8.20...8.30

Del.quantity cm³/ : 4.9...5.0

100 s: (4.8...5.2)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm³/ : 0.6...0.9
 100 s: (0.5...1.1)
 Spread cm³ : 0.2
 100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250
 Del.quantity : 49.5...50.5
 1000 : (48.0...52.0)
 Spread cm³ : 2.50
 1000 : (4.00)

RATED SPEED

1st version
 Control lever
 position degrees: 46...54

Testing:

1st rack travel in: 7.20
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1320...1350
4th rack travel in: 1450
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 490...550

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 8.20...8.30
2nd speed rpm : 500
Rack travel in m: 9.80...9.90
4th speed rpm : 800
Rack travel in m: 9.10...9.40

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 50.5...52.5
1000 s: (48.5...54.5)
Speed rpm : 800
Del.quantity cm³/ : 51.0...53.0
1000 s: (49.0...55.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 7.20
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 6.5...9.5
1000 s: (5.0...11.0)
Spread cm³ : 2.00
1000 s: (3.50)

Remarks:
:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet	: MWM 3,9 a 1
Edition	: 24.10.91
Replaces	: 26.3.90
Test oil	: ISO-4113
Combination no.	: 9 400 085 268
Injection pump	
Pump designation	: PES4A90D320RS2702
EP type number	: 9 400 083 095
Governor	
Governor design.	: RSV350...1150A2B2129 -7R
Governer no.	: 9 420 083 212
Customer-spec. information	
Customer	: MWM
Engine	: TD 229 EC-4
1st version kW	: 66.2
Rated speed	: 2300
TEST BENCH REQUIREMENTS	
Test oil	
inlet temp. °C	: 38...42
Overflow valve	
	: 1 417 413 046
Inlet press., bar	: 1.50
Test nozzle holder assembly	: 0 681 343 009
Opening pressure, bar	: 172...175
Test Lines	: 1 680 750 003
Outside diameter x Wall thickness	
x Length mm	: 6.00x2.00x600
(A) Injection pump setting values	
Insp. values in parentheses	
Set equal delivery quant.	
per values _____	
BEGINNING OF DELIVERY	
Test pressure, bar: 25...27	
Prestroke mm	: 2.65...2.75 : (2.60...2.80)

Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.30...10.40

Del.quantity cm³/ : 7.7...7.8

100 s: (7.5...8.0)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 1.1...1.5

100 s: (0.9...1.7)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 77.5...78.5

1000 : (75.5...80.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever
position degrees: 94...102

Testing:

1st rack travel in: 9.30
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 14.00
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 69...77
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 545...605

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.30...10.40
2nd speed rpm : 500
Rack travel in m: 10.80...10.90
4th speed rpm : 700
Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 70.0...72.0
1000 s: (67.5...74.5)
Speed rpm : 700
Del.quantity cm³/ : 71.5...73.5
1000 s: (69.0...76.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 11.0...15.0
1000 s: (9.0...17.0)
Spread cm³ : 2.50
1000 s: (4.50)

Remarks:

: VALMET

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,9 c 1
 Edition : 24.10.91
 Replaces : 6.86
 Test oil : ISO-4113
 Combination no. : 9 400 085 286
 Injection pump
 Pump designation : PES6A90D320RS2701
 EP type number : 9 400 083 094
 Governor
 Governor design. : RSV350...1150A2B2097
 -2R
 Governor no. : 9 420 083 224
 Customer-spec. information
 Customer : MWM
 Engine : D 229-6
 1st version kW : 81.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 046
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 003
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.65...2.75
 : (2.60...2.80)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.20...9.30

Del.quantity cm³/ : 6.2...6.3
 100 s: (5.9...6.5)

Spread cm³ : 0.3
 100 s: (0.5)

2nd speed rpm : 350.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm³/ : 1.0...1.4
 100 s: (0.8...1.7)

Spread cm³ : 0.2
 100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Del.quantity : 62.0...63.0
 1000 : (59.5...65.5)
 Spread cm³ : 3.00
 1000 : (5.00)

RATED SPEED

1st version

Control lever
position degrees: 42...50

Testing:

1st rack travel in: 8.20
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 570...630

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9.20...9.30
2nd speed rpm : 500
Rack travel in m: 9.80...9.90
4th speed rpm : 800
Rack travel in m: 9.40...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 53.5...55.5
1000 s: (51.0...58.0)
Speed rpm : 800
Del.quantity cm3/ : 59.5...61.5
1000 s: (57.0...64.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.20
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 10.5...14.5
1000 s: (8.0...17.0)
Spread cm3 : 2.50
1000 s: (4.50)

Remarks: : VALMET

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEZ 6,1 d 1
 Edition : 02.12.91
 Replaces : 2.8.91
 Test oil : ISO-4113

Combination no. : 9 400 085 301

Injection pump
 Pump designation : PES6A85D410RS2415
 EP type number : 0 410 886 907
 Governor
 Governor design. : RQV350...1325AB1234-
 1L
 Governer no. : 9 420 080 259

Customer-spec. information
 Customer : DEUTZ ARGENTINA

Engine : BF 6L 913

1st version kW : 116.0
 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
 : (1.85...2.05)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1325

Rack travel in mm : 11.10...11.20

Del.quantity cm³/

100 s: (7.5...8.0)

Spread cm³ : 0.2

100 s: (0.5)

2nd speed rpm : 350.0

Rack travel in mm : 7.9...8.1

Del.quantity cm³/

100 s: (1.1...2.1)

Spread cm³ : 0.2

100 s: (0.4)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1400
travel mm		: 8.80...9.00
2nd speed	rpm	: 300
travel mm		: 0.50...1.00
3rd speed	rpm	: 600
travel mm		: 2.60...3.10
4th speed	rpm	: 900
travel mm		: 4.70...5.20
5th speed	rpm	: 1200
travel mm		: 6.70...7.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1325

Del.quantity : 77.0...78.0

1000 : (75.0...80.0)

Spread cm³ : 2.00
 1000 : (5.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:

1st rack travel in: 10.10
Speed rpm : 1365...1375
2nd rack travel in: 4.00
Speed rpm : 1455...1485
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 66...74

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 350
Rack travel in mm : 7.90...8.10

CONSTANT REGULATION

Speed rpm : 370...530

TORQUE CONTROL

Dimension a mm : 1.20
Torque control curve - 1st version
1st speed rpm : 1325
Rack travel in m: 11.10...11.20
2nd speed rpm : 500
Rack travel in m: 12.30...12.40
3rd speed rpm : 800
Rack travel in m: 12.10...12.40
4th speed rpm : 1100
Rack travel in m: 11.50...11.70

START CUT-OUT

Speed 1/min : 300 (320)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 74.0...76.0
 1000 s: (71.5...78.5)
Speed rpm : 800
Del.quantity cm³/ : 78.0...80.0
 1000 s: (75.5...82.5)
Speed rpm : 1100
Del.quantity cm³/ : 76.5...78.5
 1000 s: (74.0...81.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1365...1375

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 g 3
 Edition : 24.10.91
 Replaces : 2.8.91
 Test oil : ISO-4113

Combination no. : 9 400 085 315

Injection pump
 Pump designation : PES6A95D410RS2772
 EP type number : 9 400 084 018
 Governor
 Governor design. : RQV300...1300AB1066-
 9L
 Governor no. : 9 420 080 282

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366 A

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.40...10.50

Del.quantity cm³/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del.quantity cm³/ : 0.9...1.5

100 s: (0.7...1.7)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 800

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 106...114

Testing:

1st rack travel in: 9.40
Speed rpm : 1360...1370
2nd rack travel in: 4.00
Speed rpm : 1470...1500
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 62...70

Testing:

Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

Speed rpm : 420...550

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.40...10.50
2nd speed rpm : 800
Rack travel in m: 10.90...11.00
4th speed rpm : 1000
Rack travel in m: 10.60...10.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 800
Rack travel mm : 10.90...11.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.30
2nd pressure hPa : 460
Rack travel in m: 10.10...10.20
3rd pressure hPa : 300
Rack travel in m: 9.40...9.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 800
Del.quantity cm³/ : 86.0...89.0
1000 s: (83.5...91.5)
Aneroid pressure h: 800
Speed rpm : 1000
Del.quantity cm³/ : 88.0...91.0
1000 s: (85.5...93.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 50.0...52.0
1000 s: (48.0...54.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1360...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...90.0
1000 s: (-)
Rack travel in mm : 13.60...13.80

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 5,8 c
 Edition : 02.12.91
 Replaces : 3.7.90
 Test oil : ISO-4113

Combination no. : 9 400 085 319

Injection pump
 Pump designation : PES6A95D410RS2772
 EP type number : 9 400 084 018
 Governor
 Governor design. : RQV300...1400AB1066-
 10L
 Governer no. : 9 420 080 287

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 352 A

1st version kW : 141.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 006

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.50...9.60

Del.quantity cm³/

100 s: (7.5...8.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del.quantity cm³/

100 s: (0.6...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 500

travel mm : 2.30...2.80

3rd speed rpm : 750

travel mm : 4.10...4.30

4th speed rpm : 1500

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Aneroid pressure h: 700

Del.quantity : 77.5...79.5

1000 : (75.5...81.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 107...115

Testing:

1st rack travel in: 8.50
Speed rpm : 1460...1470
2nd rack travel in: 4.00
Speed rpm : 1535...1565
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 63...71

Testing:

Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

Speed rpm : 420...550

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 9.50...9.60
2nd speed rpm : 800
Rack travel in m: 10.00...10.10
4th speed rpm : 1000
Rack travel in m: 9.70...9.90

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 10.00...10.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

2nd pressure hPa : 330

Rack travel in m: 1.10...1.30

3rd pressure hPa : 170

Rack travel in m: 0.50...0.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 800

Del.quantity cm³/ 1000 s: 74.0...77.0
(71.5...79.5)

Aneroid pressure h: 700

Speed rpm : 1000

Del.quantity cm³/ 1000 s: 77.5...80.5
(75.0...83.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ 1000 s: 41.0...43.0
(39.0...45.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.50

Speed rpm : 1460...1470

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ 1000 s: 70.0...90.0
(67.0...93.0)

Rack travel in mm : 12.90...13.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 u 1
 Edition : 24.10.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 087 449

Injection pump
 Pump designation : PES6P120A320/3RS3264
 EP type number : 9 400 087 075
 Governor
 Governor design. : RQV350...1100PA973
 Governer no. : 9 420 080 293

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTAA - 8.3 l

1st version kW : 216.6
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Crifice plate diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.50...11.60

Del.quantity cm³/ : 19.9...20.1

100 s: (19.6...20.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 0.5...1.1

100 s: (0.3...1.3)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1150

travel mm : 7.00...7.10

2nd speed rpm : 350

travel mm : 1.40...1.80

3rd speed rpm : 650

travel mm : 4.30...4.70

4th speed rpm : 1400

travel mm : 8.80...9.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1325

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del.quantity : 199.0...201.0

1000 : (196.0...204.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 106...114

Testing:

1st rack travel in: 10.50
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1330...1360
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 66...74

Testing:

Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 425...575

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 11.50...11.60

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 480
Rack travel in m: 9.60...9.70
3rd pressure hPa : 800
Rack travel in m: 10.70...11.00

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 700

Del.quantity cm³/ : 204.0...208.0
 1000 s: (200.5...211.5)
Spread cm³ : 6.00
 1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 116.0...119.0
 1000 s: (114.0...121.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.50
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 220.0...250.0
 1000 s: (216.0...254.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 5.0...11.0
 1000 s: (3.0...13.0)
Spread cm³ : 5.00
 1000 s: (8.00)

Remarks:

:
Start-of-delivery mark/luck = 8.0°
angular displacement of the cam after
start of delivery of cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 s6
 Edition : 02.12.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 458

Injection pump
 Pump designation : PE6P120A320RS3186
 EP type number : 0 411 826 756
 Governor
 Governor design. : RGV250...1025PA657
 -27
 Governer no. : 9 420 080 312

Customer-spec. information

Customer : VOLVO

Engine : TD102FS

1st version kW : 250.0
 Rated speed : 2050

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
 : (2.55...2.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 21.0...21.2

100 s: 20.7...21.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 3.9...4.1
 Del. quantity cm³/ : 1.6...2.1
 100 s: (1.3...2.3)
 Spread cm³ : 0.5
 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 250
	travel mm	: 1.10...1.30
2nd speed	rpm	: 500
	travel mm	: 4.10...4.90
3rd speed	rpm	: 700
	travel mm	: 6.30...6.70
4th speed	rpm	: 900
	travel mm	: 6.30...6.70
5th speed	rpm	: 1025
	travel mm	: 7.30...7.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1080

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700

Aneroid pressure h: 1000
Del.quantity : 210.0...212.0
1000 : (207.0...215.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 11.10
Speed rpm : 1055...1065
2nd rack travel in: 4.00
Speed rpm : 1120...1150
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 61...69

Testing:
Speed rpm : 100
Minimum rack trav: 5.40
Speed rpm : 250
Rack travel in mm : 3.90...4.10

CONSTANT REGULATION
Speed rpm : 250...350

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.10...12.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
2nd pressure hPa : 75
Rack travel in m: 0.20...0.30
3rd pressure hPa : 425
Rack travel in m: 2.70...3.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 146.0...148.0
1000 s: (143.0...151.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1055...1065

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 250.0...290.0
1000 s: (246.0...294.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.90...4.10
Del.quantity cm³/ : 16.0...21.0
1000 s: (13.5...23.5)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:
:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 u 3
 Edition : 24.10.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 087 463

Injection pump
 Pump designation : PES6P120A320/3RS3264
 EP type number : 9 400 087 075
 Governor
 Governor design. : RQV350...1100PA973-1
 Governer no. : 9 420 080 317

Customer-spec. information

Customer : CUMMINS

Engine : 6 CTAA - 8.3 l

1st version kW : 186.4
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.40...10.50

Del.quantity cm³/

100 s: (16.8...17.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/

100 s: (0.3...1.3)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 1150
	travel mm	: 7.00...7.10
2nd speed	rpm	: 350
	travel mm	: 1.40...1.80
3rd speed	rpm	: 650
	travel mm	: 4.30...4.70
4th speed	rpm	: 1400
	travel mm	: 8.80...9.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1325

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 171.0...173.0

1000 : (168.0...176.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 105...113

Testing:

1st rack travel in: 9.40
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1305...1335
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 66...74

Testing:

Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 425...575

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 10.40...10.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.20
2nd pressure hPa : 490
Rack travel in m: 9.40...9.50
3rd pressure hPa : 660
Rack travel in m: 10.00...10.30

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 700

NO2

Del.quantity cm³/ : 166.0...170.0
 1000 s: (162.5...173.5)
Spread cm³ : 6.00
 1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 118.0...121.0
 1000 s: (116.0...123.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.40
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 220.0...250.0
 1000 s: (216.0...254.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 5.0...11.0
 1000 s: (3.0...13.0)
Spread cm³ : 5.00
 1000 s: (8.00)

Remarks:

:
Start-of-delivery mark/luck = 8.0°
angular displacement of the cam after
start of delivery of cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 j 3
 Edition : 6.12.91
 Replaces : 26.2.87
 Test oil : ISO-4113

Combination no. : 9 400 230 011

Injection pump
 Pump designation : PES6A95D410RS2561
 Governor
 Governor design. : RSV600...1100A2B2048
 L

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466 TH 01

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 1.85...1.95
 : (1.80...2.00)
 Rack travel in mm : 10.50
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - " : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.15...10.25

Del.quantity cm³ : 9.5...9.7

100 s: (9.3...9.9)

Spread cm³ : 0.3

100 s: (-)

2nd speed rpm : 600

Rack travel in mm : 5.20...5.40

Del.quantity cm³ : 1.2...1.6

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 95.5...97.5

1000 : (93.5...99.5)

Spread cm³ : 4.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 9.20

Speed rpm : 1145...1150

2nd rack travel in: 4.00

Speed rpm : 1215...1245

4th rack travel in: 1300

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 24...32

Setting point w/out bumper spring

Speed rpm : 600
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 600
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed rpm : 730...790
Speed rpm : 850
Maximum rack trave: 1.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...200.0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 1200
Del.quantity cm³/ : 19.0...29.0
1000 s: (-)

LOW IDLE

Speed rpm : 600
Del.quantity cm³/ : 12.0...16.0
1000 s: (-)

Remarks:
Start-of-delivery mark = 15.5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 h16
 Edition : 22.11.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 230 085
 Injection pump
 Pump designation : PES6A100D410RS2676-1
 EP type number : 9 410 230 024
 Governor
 Governor design. : RSV450...1050A2C2204
 Governer no. : 9 420 234 121
 Customer-spec. information
 Customer : JOHN DEERE
 Engine : 6466T
 1st version kW : 119.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55
 : (2.40...2.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.80...9.90

Del.quantity cm³/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.7...2.1

100 s: (1.5...2.4)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 99.5...101.5

1000 : (97.5...103.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 45...53

Testing:

1st rack travel in: 8.80

Speed rpm : 1145...1155

2nd rack travel in: 4.00

Speed rpm : 1210...1220
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 450
Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.80...9.90
2nd speed rpm : 500
Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 114.0...118.0
1000 s: (112.0...120.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.80
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 190.0...210.0
1000 s: (185.0...215.0)

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 17.5...21.5
1000 s: (15.0...24.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

NOS

: JOHN DEERE # RE19919

Start-of-delivery mark at control-rod travel 10.5 mm and 15° after start of delivery.

Starting/full-load transition speed from holding magnet = 450 1/min.

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 b 3
 Edition : 22.11.91
 Replaces : 18.9.91
 Test oil : ISO-4113

Combination no. : 9 400 230 107

Injection pump
 Pump designation : PES6A100D320/3RS2691
 -2
 EP type number : 9 410 230 028
 Governor
 Governor design. : RQV350...1200AB1233R
 Governer no. : 9 420 231 018

Customer-spec. information

Customer : C.D.C

Engine : 6CT830

1st version kW : 157.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.80...10.90

Del.quantity cm³/

100 s: (11.0...11.6)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 4.6...4.8
 Del.quantity cm³/ : 1.7...2.1
 100 s: (1.4...2.3)
 Spread cm³ : 0.6
 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 250
	travel mm	: 0.00...0.20
2nd speed	rpm	: 350
	travel mm	: 1.00...1.50
3rd speed	rpm	: 450
	travel mm	: 1.90...2.40
4th speed	rpm	: 1200
	travel mm	: 6.90...6.90
5th speed	rpm	: 1350
	travel mm	: 8.15...8.65

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1435
 Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200

Aneroid pressure h: 700
Del.quantity : 112.5...114.5
1000 : (110.5...116.5)
Spread cm³ : 4.00
1000 : (6.50)

RATED SPEED

1st version
Control lever
position degrees: 40...46

Testing:
1st rack travel in: 9.80
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1315...1345
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...15
Speed rpm : 350
Rack travel in mm : 4.60...4.80

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 10.80...10.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.70
2nd pressure hPa : 260
Rack travel in m: 9.90...10.00
3rd pressure hPa : 345
Rack travel in m: 10.30...10.70

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 85.5...89.5
1000 s: (83.5...91.5)
Aneroid pressure h: -

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.60...4.80
Del.quantity cm³/ : 17.0...21.0
1000 s: (14.5...23.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3908558

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 a 7
 Edition : 6.12.91
 Replaces : 5.3.87
 Test oil : ISO-4113
 Combination no. : 9 400 231 010

Injection pump
 Pump designation : PES6P110A720RS361
 Governor
 Governor design. : RSV400...1050P2/454D

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466 A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.500x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.75...2.85
 : (2.70...2.90)

Rack travel in mm : 11.50
 Firing order : 1-5-3-6-2-4

Phasing
 Tolerance + - ° : 0-60-120-180-240-300
 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.50...11.60

Del.quantity cm³/

100 s: (14.7...15.5)

Spread cm³ : 0.4

100 s: (-)

2nd speed rpm : 400

Rack travel in mm : 6.10...6.30

Del.quantity cm³/

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1200

Del.quantity : 150.0...152.0

1000 : (147.0...155.0)

Spread cm³ : 4.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 10.50

Speed rpm : 1090...1110

2nd rack travel in: 7.30

Speed rpm : 1135...1165

LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 6.2

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 6.10...6.30
Rack travel in mm : 2.00
Speed rpm : 570...630

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.50...11.60
2nd speed rpm : 650
Rack travel in m: 12.25...12.35

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 800
Pressure hPa : 690
Rack travel mm : 11.75...11.85

Measurement

Speed 1/min : 800

1st pressure hPa : 380
Rack travel in m: 9.90...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 162.0...166.0
1000 s: (159.0...169.0)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 74.0...80.0
1000 s: (71.0...83.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 155.0...175.0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 1150
Del.quantity cm³/ : 69.0...79.0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm³/ : 12.0...18.0
1000 s: (-)

Remarks:

: JOHN DDERE # AR87989

Start-of-delivery mark = 13.25° after start of delivery cyl. 1.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 g10
 Edition : 6.12.91
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 231 082

Injection pump
 Pump designation : PES6P110A720RS3083
 Governor
 Governor design. : RSV400...1050P2/488

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466 A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 40...45

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3.45...3.55
 : (3.40...3.60)

Rack travel in mm : 10.50
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.30...11.40

Del.quantity cm³/ : 14.5...14.7

100 s: (-)

Spread cm³ : 0.4

100 s: (-)

2nd speed rpm : 400

Rack travel in mm : 5.80...6.00

Del.quantity cm³/ : 1.3...1.9

100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1200

Del.quantity : 145.0...147.0

1000 : (-)

Spread cm³ : 4.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 43...47

Testing:

1st rack travel in: 10.30

Speed rpm : 1095...1105

2nd rack travel in: 4.00

Speed rpm : 1165...1195

4th rack travel in: 1300

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 16.5...20.5

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 600...660
Speed rpm : 680
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.25...11.35
2nd speed rpm : 700
Rack travel in m: 12.25...12.55
3rd speed rpm : 500
Rack travel in m: 9.25...9.35

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 610
Rack travel mm : 12.05...12.15

Measurement

Speed 1/min : 500
1st pressure hPa : 400
Rack travel in m: 10.90...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm³/ : 165.0...171.0
1000 s: (-)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 90.0...94.0
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...190.0
1000 s: (-)

HIGH IDLE

1st version
Speed rpm : 1150
Del.quantity cm³/ : 49.0...55.0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Del.quantity cm³/ : 13.0...19.0
1000 s: (-)

Remarks:

Start-of-delivery mark 12° cam angle
after start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 c2
 Edition : 6.12.91
 Replaces : 7.86
 Test oil : ISO-4113

Combination no. : 9 400 231 204

Injection pump
 Pump designation : PES6P110A720RS3144
 Governor
 Governor design. : RSV400...1050PO/492-
 2

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6619 A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 9 681 230 705

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 10.50
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 21.6...21.8

100 s: (21.4...22.2)

Spread cm³ : 0.4

100 s: (0.75)

2nd speed rpm : 400

Rack travel in mm : 5.70...5.90

Del.quantity cm³/ : 1.9...2.4

100 s: (1.7...2.7)

Spread cm³ : 0.45

100 s: (0.75)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1200

Del.quantity : 216.5...219.5

1000 : (214.0...222.0)

Spread cm³ : 4.0

1000 : (7.5)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 12.60

Speed rpm : 1100...1110

2nd rack travel in: 4.00

Speed rpm : 1170...1200

4th rack travel in: 1280

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 535...595

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.60...13.70
2nd speed rpm : 750
Rack travel in m: 14.30...14.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 720
Rack travel mm : 13.95...14.05

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.30...11.40
2nd pressure hPa : 240
Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm3/ : 229.0...233.0
1000 s: (226.0...236.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 158.0...162.0
1000 s: (155.0...165.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.60
Speed rpm : 1100...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 180.0...200.0
1000 s: (176.0...214.0)
Rack travel in mm : 21.00

HIGH IDLE

1st version
Speed rpm : 1150
Del.quantity cm3/ : 61.0...71.0
1000 s: (59.5...72.5)

LOW IDLE

Speed rpm : 400
Del.quantity cm3/ : 19.5...24.5
1000 s: (17.0...27.0)
Spread cm3 : 4.5
1000 s: (7.5)

Remarks:
Start-of-delivery mark 13° cam angle
after start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 c
 Edition : 6.12.91
 Replaces : 7.86
 Test oil : ISO-4113

Combination no. : 9 400 231 215

Injection pump
 Pump designation : PES6P110A720RS3144
 Governor
 Governor design. : RSV400...1050POA513

Customer-spec. information

Customer : JOHN DEERE

Engine : 6619 A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3.45...3.55
 : (3.40...3.60)

Rack travel in mm : 10.50
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.90...13.00

Del.quantity cm³/

100 s: (21.4...22.2)

Spread cm³ : 0.4

100 s: (0.75)

2nd speed rpm : 400

Rack travel in mm : 5.10...5.30

Del.quantity cm³/

100 s: (1.7...2.7)

Spread cm³ : 0.45

100 s: (0.75)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1200

Del.quantity : 216.5...219.5

1000 : (214.0...222.0)

Spread cm³ : 4.0

1000 : (7.5)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 11.90

Speed rpm : 1100...1110

2nd rack travel in: 4.00

Speed rpm : 1160...1190

4th rack travel in: 1280

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 21...29

Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.7

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 505...565

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.90...13.00
2nd speed rpm : 750
Rack travel in m: 13.80...14.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 720
Rack travel mm : 13.15...13.25

Measurement
Speed 1/min : 500

1st pressure hPa : 240
Rack travel in m: 11.30...11.70
2nd pressure hPa : -
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ : 229.0...233.0
1000 s: (226.0...236.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1100...1110

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 169.0...189.0
1000 s: (165.0...193.0)
Rack travel in mm : 21.00

HIGH IDLE

1st version
Speed rpm : 1150
Del.quantity cm³/ : 61.0...71.0
1000 s: (59.5...72.5)

LOW IDLE

Speed rpm : 400
Del.quantity cm³/ : 19.5...24.5
1000 s: (17.0...27.0)
Spread cm³ : 4.5
1000 s: (7.5)

Remarks:

Start-of-delivery mark 13° cam angle
after start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.